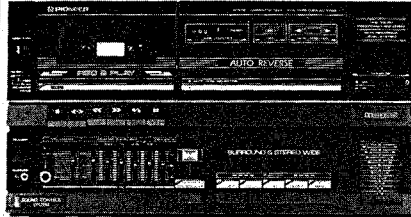


Service Manual

**CIRCUIT DESCRIPTIONS
REPAIR & ADJUSTMENTS**



**ORDER NO.
ARP1120-0**

STEREO CASSETTE TAPE DECK AMPLIFIER

DC-X33Z(BK) DC-X33Z

MODEL DC-X33Z(BK) COMES IN FIVE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Applicable model		Power requirement	Destination
	DC-X33Z(BK)	DC-X33Z		
HE	○	○	AC 220V (240V)* (Switchable)	European continent
HB	○	○	AC 240V (220V)* (Switchable)	United Kingdom
S	○	—	AC 110V/120V/240V (Switchable)	General market
YP	○	—	AC 240V only	Australia
HEZ	○	—	AC 220V (240V)* (Switchable)	West Gemany

* Change the primary wiring of the power transformer.

- This service manual is applicable to the HB, HE and S types.
- As to the HE and S types, please refer to page 55, 56.
- As to the other types, please refer to the additional service manual.
- As to the circuit and mechanism descriptions, please refer to the DC-X55Z(BK) service manual (ARP-1054).

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1. SPECIFICATIONS

AMPLIFIER SECTION

Continuous Average Power Output is 25 Watts* per channel, min., at 8 ohms from 40 Hertz to 20,000 Hertz, with no more than 0.3% total harmonic distortion.

**Measured pursuant to the Federal Trade Commission's Trade Regulation rules on Power Output Claims for Amplifiers.*

Continuous Power Output	
40 to 20,000Hz	25 W + 25 W (T.H.D. 0.3% 8 ohms)
1 kHz (DIN)	32 W + 32 W (T.H.D. 1% 8 ohms)
1 kHz (DIN music power)	45 W + 45 W (T.H.D. 1% 8 ohms)
PMPO	90 W + 90 W
Hum and Noise (IHF, short-circuited, A network)	
PHONO	72 dB
Hum and Noise (DIN continuous Power/50 mV)	
PHONO	68 dB/60 dB
Total Harmonic Distortion (40 Hz to 20,000 Hz, 8 ohms)	
12.5 Watts per channel power output	No more than 0.2%

Tape Deck Section

Systems	4 track, 2-channel stereo
Heads	"Hard Permalloy" recording/playback head x 1 "Ferrite" erasing head x 1
Motor	DC servo motor x 1
Wow and Flutter	No more than 0.09% (WRMS)
Fast Winding Time	Approximately 100 seconds (C-60 tape)

Frequency Response

-20 dB recording:	
Normal tape	35 Hz to 14,000 Hz
CrO ₂	35 Hz to 15,000 Hz
Metal tape	35 Hz to 16,000 Hz
Signal-to-Noise Ratio	55 dB
Dolby NR OFF	
Noise Reduction Effect	More than 10 dB (at 5 kHz)
Dolby B type NR ON	

Furnished Parts

Operating Instructions	1
Turntable legs parts	2

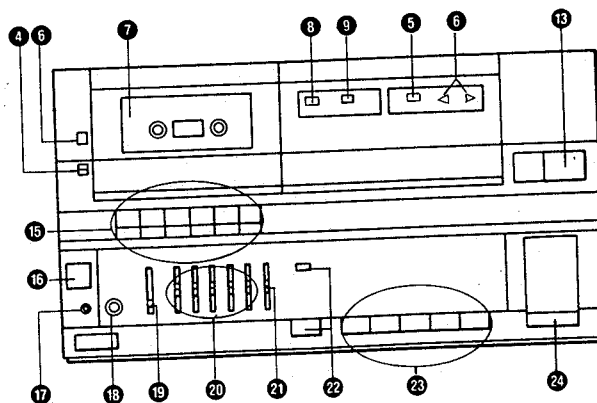
Miscellaneous

Power requirements	AC 120 V, 60 Hz
U.S., Canadian models	AC 220 V, 50/60 Hz
European model	AC 240 V, 50/60 Hz
U.K. model	
Other destination models	AC 110/120/220/240 V (switchable) 50/60 Hz

Power Consumption

U.S., Canadian models	150 W (CSA 180 VA)
European model	230 W
U.K. and Australian models	230 W
Other destination models	150 W
Dimensions	360(W) x 190(H) x 283 (D) mm 14-3/16(W) x 7-7/16(H) x 11-1/8(D) in
Weight (without package)	6.4 kg (14 lb 2 oz)

2. FRONT PANEL FACILITIES



4 REVERSE MODE switch

Sets the reverse mode for the record/play deck.

Switch positions	Play	Record
	Continuous play	Double-side recording
	Reverse play	Single-side recording

Continuous playback is automatically stopped after 8 round trips. Note that it will be counted as one reversal if the tape direction is changed using the direction switch. (One round trip will be counted if the switch is pressed twice.)

5 Recording indicator (REC)

- ☐ Lights during recording. Flashes during tape copying. (DC-X55Z and DC-555Z only)

6 Direction switch/indicator (DIRECTION)

Depress to set the recording and playback direction of the record/play deck. Direction change can be performed during recording, playback or pause.

- > ... Lights when forward mode is selected. Flashes if tape travel is stopped during reverse recording.
- < ... Lights when reverse mode is selected.

7 Cassette compartment (Recording and playback)

8 TAPE COUNTER (Record/play deck.)

3-digit display measures tape travel on record/play deck.

9 TAPE COUNTER RESET button

10 COPY SPEED switch

Press to set the copy mode.

- NORMAL ... Permits you to listen to playback normally during dubbing (normal speed copying)
- HIGH ... High speed dubbing (double-speed, half-time copying)

11 Playback-only switches

- ◀▶ (PLAY) ... Forward or reverse mode playback.
- ◀ (FAST) Rewind in forward mode; fast forward in reverse mode.
- ▶ (FAST) Fast forward in forward mode; rewind in reverse mode.
- /△ (STOP/EJECT) ... Stops tape travel. Ejects cassette if pressed when tape is stopped.

12 Synchronized copy switch (SYNCHRO COPY)

Press to start copying from Deck I to Deck II. Set the copying speed (NORMAL or HIGH) using the COPY SPEED switch.

- Press this switch only after you have set the COPY SPEED switch as desired. If this switch is pressed first, the speed cannot afterwards be changed, even if the COPY SPEED switch position is later changed.

13 Dolby NR switch

Press to activate noise reduction system. Use to play back tapes recorded using Dolby B NR noise reduction.

- Tapes recorded using Dolby B NR noise reduction should always be played back with the noise reduction system on. Sound quality will be adversely affected if they are played back with the system off, or if tapes recorded using a different noise reduction system are played back with the Dolby B NR system on.
- It is recommended that tapes recorded using Dolby B NR be so marked on the label. This will help to prevent incorrect setting of the noise reduction switch during playback.

~~~~~  
Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.  
~~~~~

14 Recording mute switch (REC MUTE)

Use to create blank intervals on a tape during recording. Works only while held depressed.

15 Record/Playback switches

- (REC) Record
- ◀▶ (PLAY) .. Playback in forward or reverse mode.
- ◀ (FAST) Rewind in forward mode, fast forward in reverse mode.
- ▶ (FAST) Fast forward in forward mode, rewind in reverse mode.
- /△ (STOP/EJECT) .. Stops tape travel. Ejects cassette if pressed when tape is stopped.
- (PAUSE) Temporarily stops tape travel. Cancels pause mode when pressed again.

[AMPLIFIER/GRAPHIC EQUALIZER]

16 Power switch (POWER)

17 Headphone jack (PHONES)

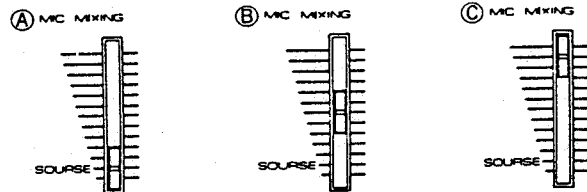
For miniature stereo phone plug.

18 Microphone jack (MIC)

For standard phone plug.

19 Mic Mixing Controls (MIC MIXING)

Adjusts balance between mic volume and volume of other input sources.



Source input emphasized

To listen to the sound from a microphone mixed with that of a radio broadcast or tape playback:

Mic input emphasized

NOTE:

- Set the control to the SOURCE position as shown in Fig. A when not using a microphone.
- Source volume is cut by about 1/100 when control is set to the MIC position.

20 Graphic equalizer controls (GRAPHIC EQUALIZER)

Fine adjustments in sound quality are possible using the 5 controls on the graphic equalizer.

21 BALANCE control

22 SURROUND/STEREO WIDE switch/indicator

By using this function, the sounds from stereo sources will be given new breadth, reproducing the effect of concert hall presence.

NOTE:

Stereo Wide sound has no effect on monaural sources (AM broadcasts, etc.).

23 Function switches (FUNCTION)

Press the button corresponding to the desired program source.

- TUNER Press to listen to radio.
- VIDEO Press to listen to component (Hi-Fi VCR, laser disc player, etc.) connected to the auxiliary input jacks.
- CD Press to listen to CD player.
- PHONO Press to listen to turntable.
- TAPE Press to listen to tape playback.

24 Volume Control (VOLUME)

3. DISASSEMBLY

3-1 REMOVAL OF FRONT PANEL

1. Remove 5 screws ①.
2. Remove the bonnet case.
3. Remove the connectors of 5P, 6P and 8P.
4. Remove the LED assembly.
5. Remove 2 screws ②.
6. Press the 3 claws on the bottom and remove the front panel assembly.

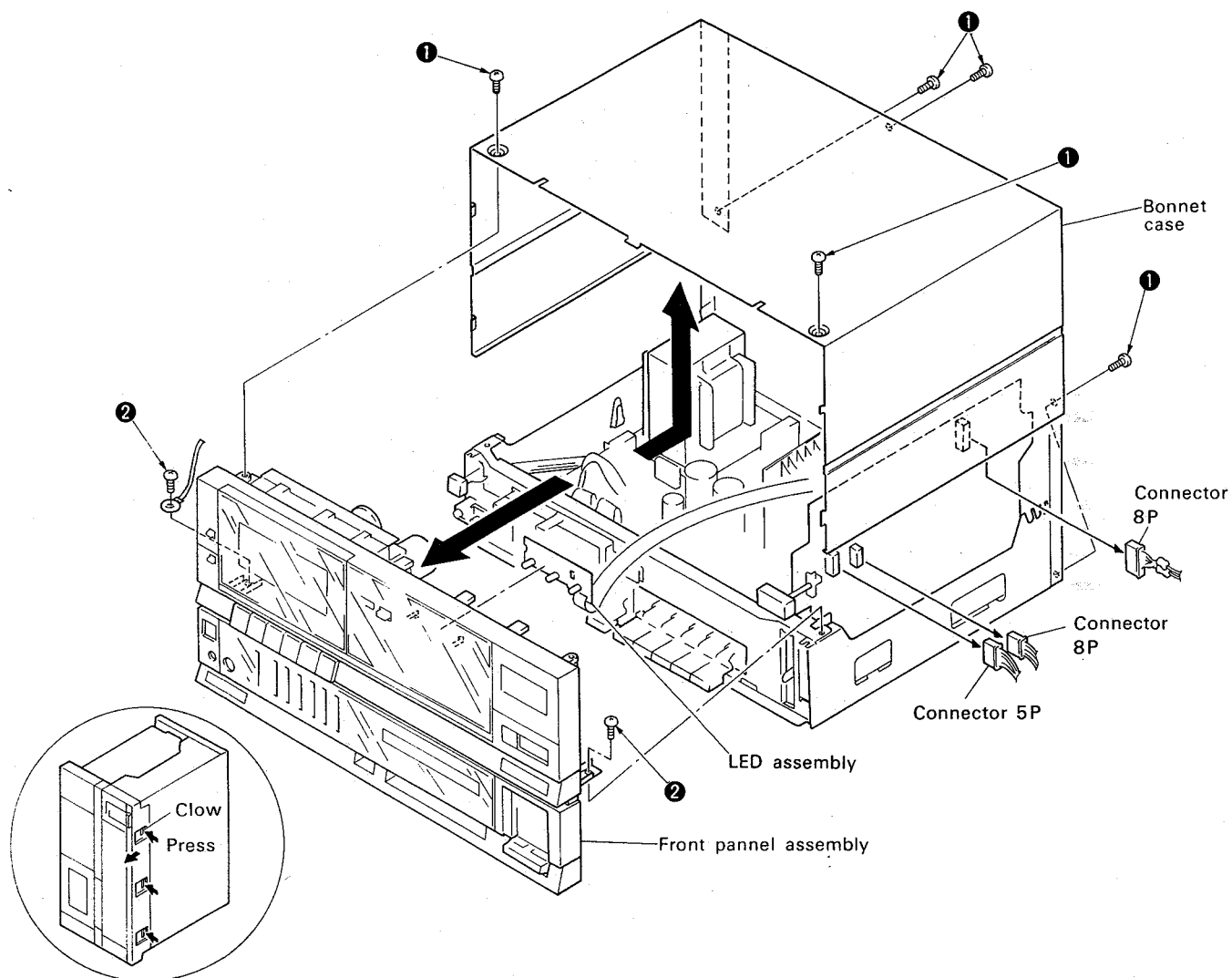


Fig. 3-1 Removal of front panel

3-2 REMOVAL OF TAPE TRANSPORT UNIT

1. Open the cassette door.
2. Detach the counter belt from the tape counter and apply it to the tape transport unit.
3. Remove 4 screws ①
4. Detach the tape transport unit from the front panel assembly.

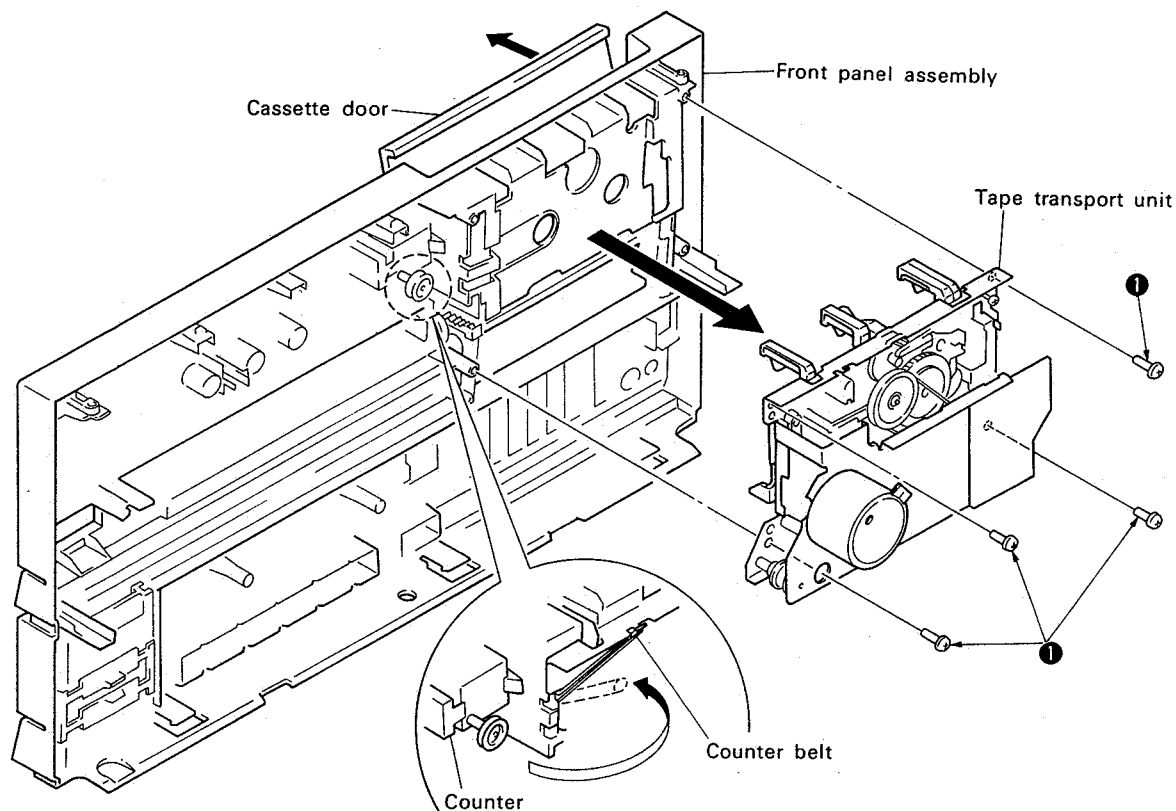


Fig. 3-2 Removal of tape transport unit

3-3 REMOVAL OF AF ASSEMBLY, TAPE ASSEMBLY, AND POWER TRANSFORMER

1. Remove 5 screws ①
2. Remove a screw ② and remove one section of the PCB holder.
3. Remove the AF assembly in the direction of arrow.
4. The tape assembly can be removed by removing the connectors of 5P and 12P from the AF assembly.
5. The power transformer can be removed by removing 4 screws ③

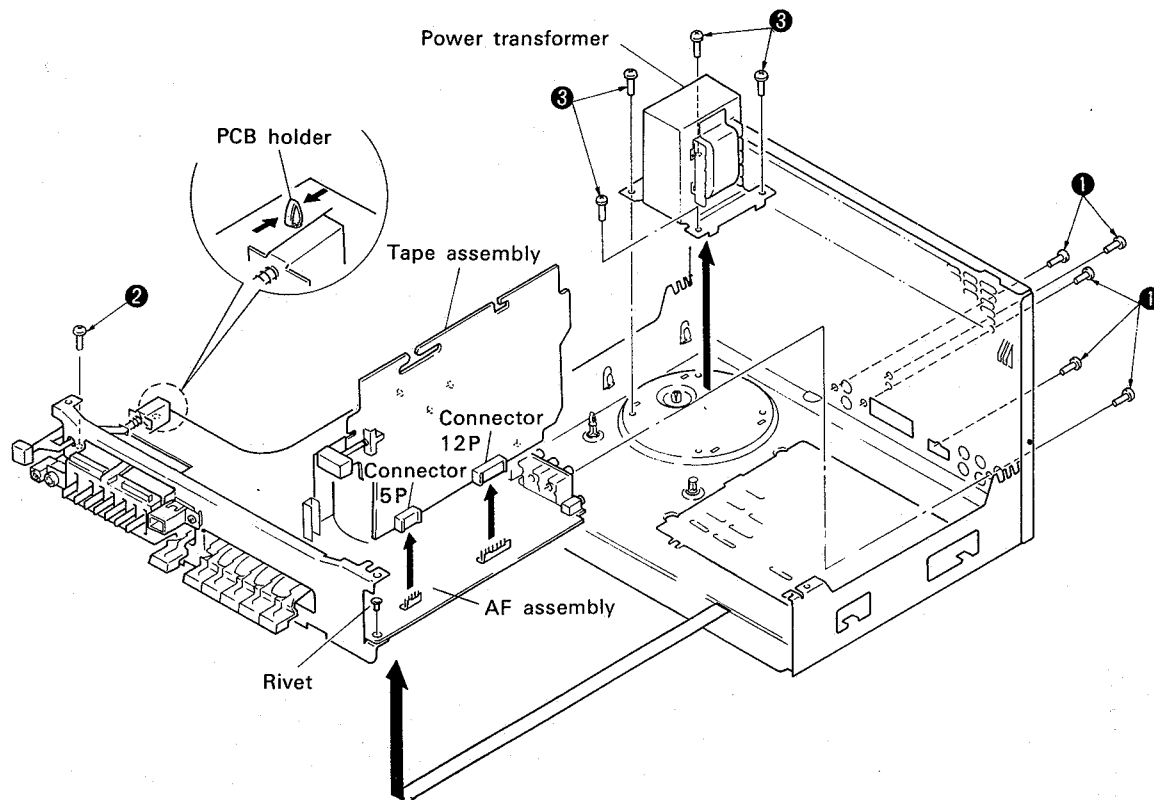


Fig. 3-3 Removal of assembly tape assembly and power transformer

3-4 REPLACEMENT AND APPLYING OF BELT

1. Remove a screw ① and 2 screws ②, and remove the motor bracket.
2. How to apply the belt is as shown in Fig 3-4.

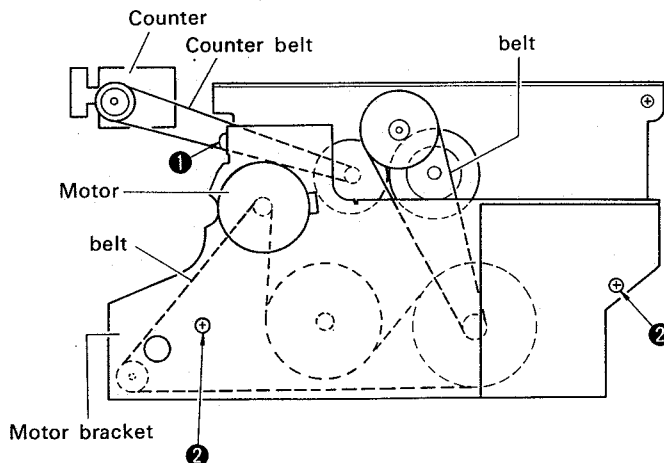


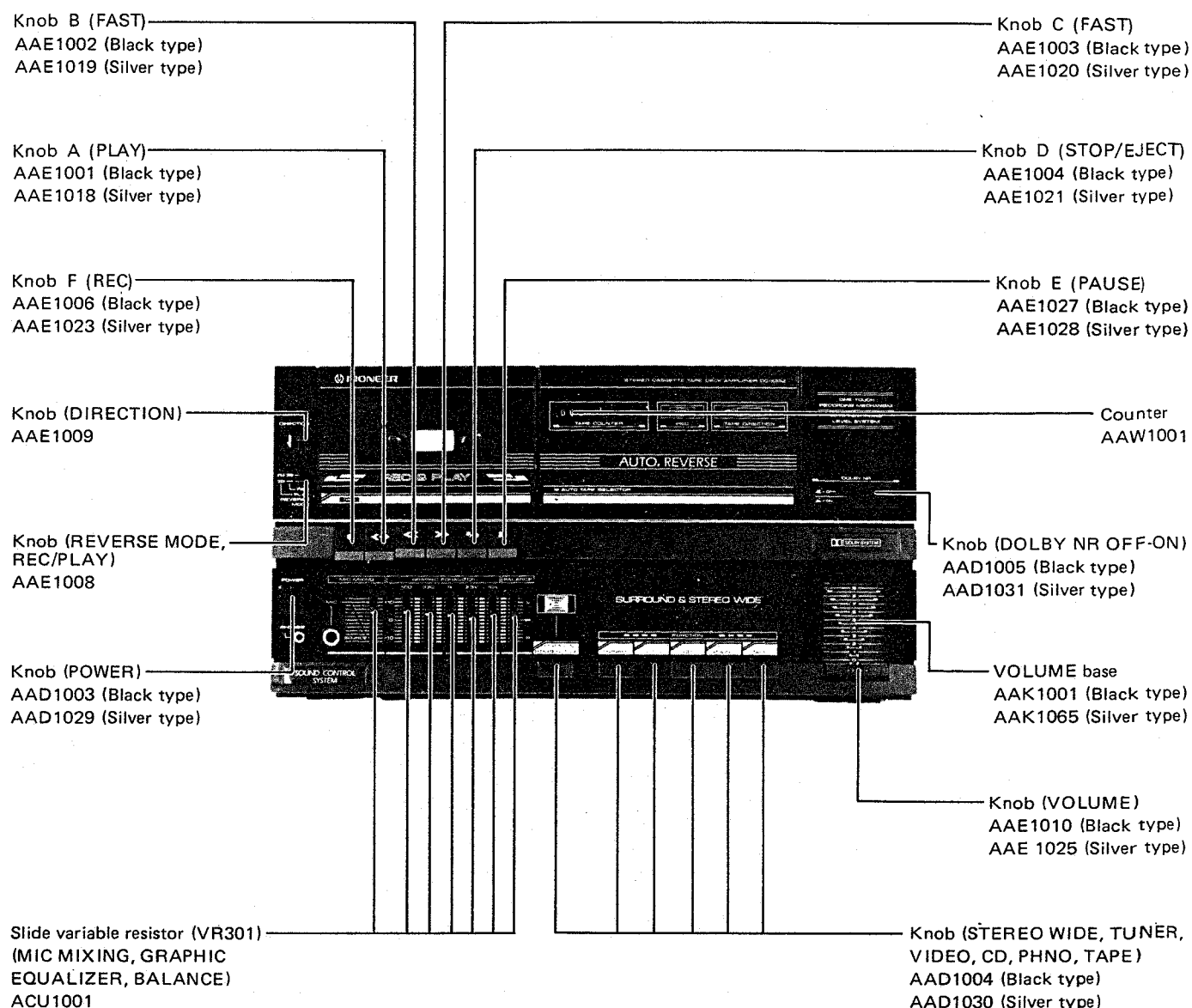
Fig. 3-4 Replacement and applying of belt

4. PARTS LOCATION

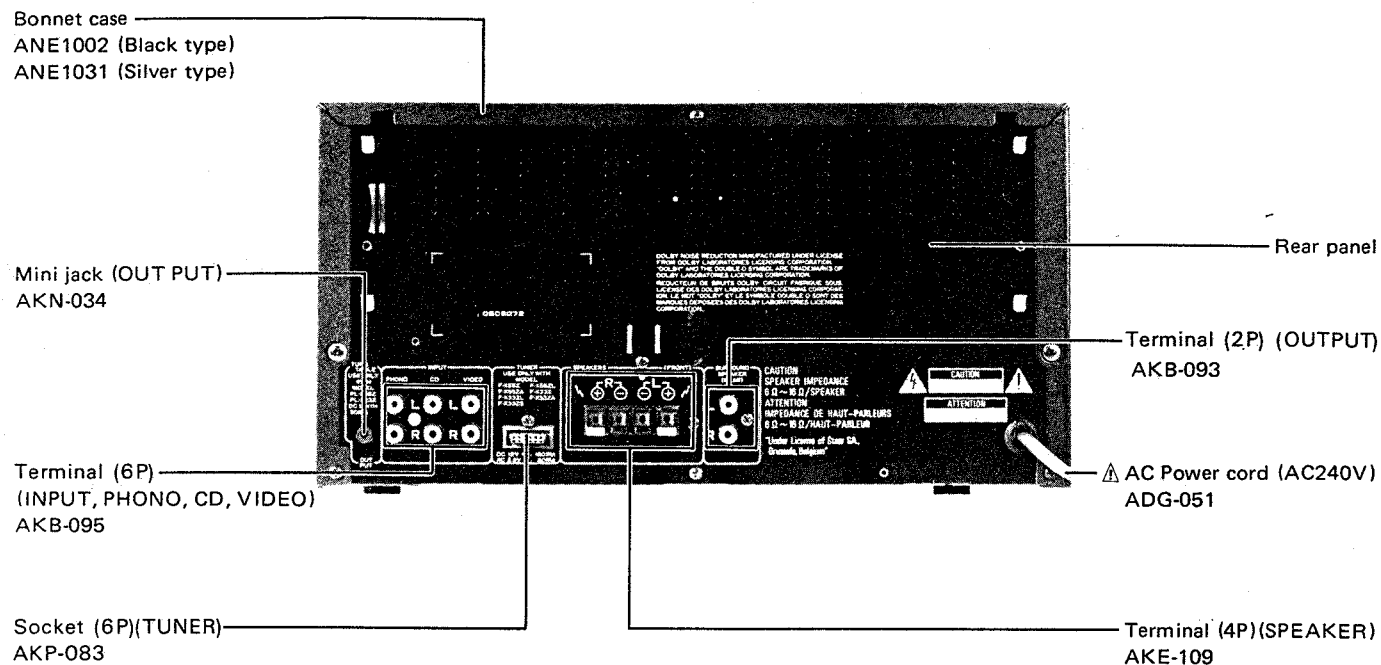
NOTES:

- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks $\star\star$ and \star .
 $\star\star$ GENERALLY MOVES FASTER THAN \star
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by " \odot " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

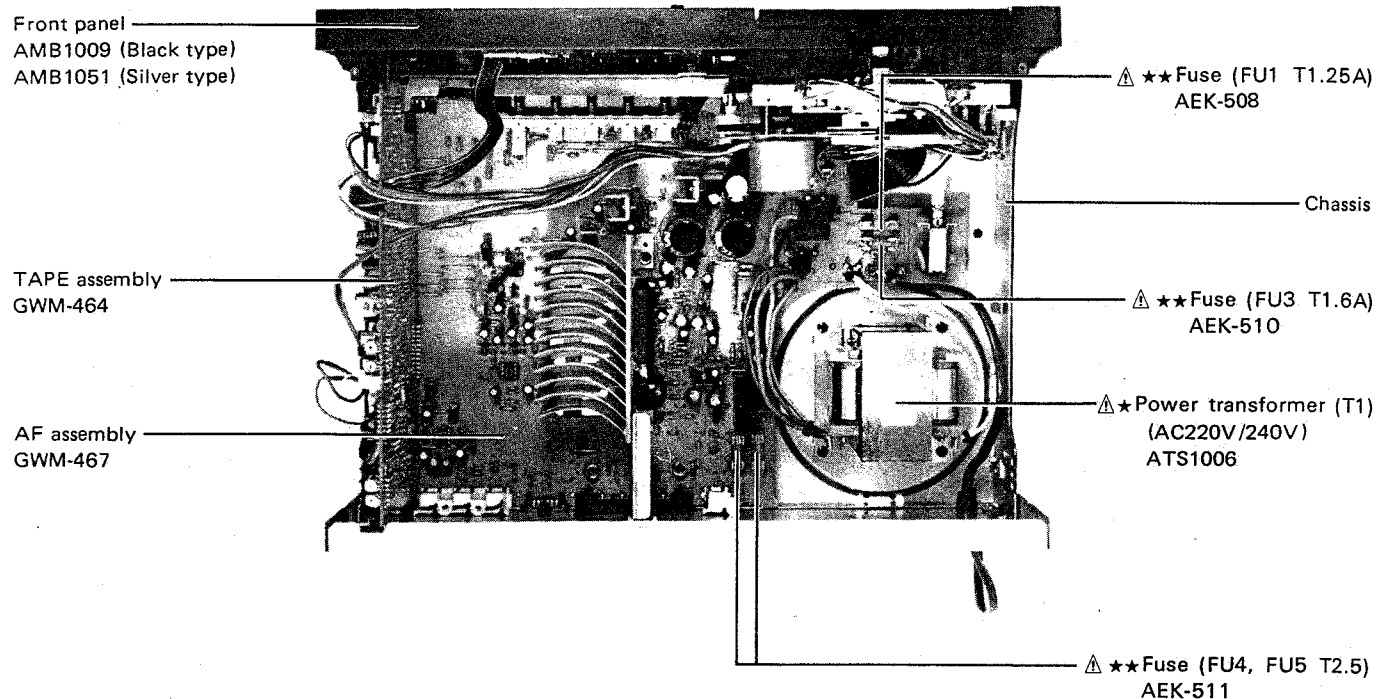
Front Panel View



Rear Panel View



Top View with Bonnet Case Removed



5. ELECTRICAL PARTS LIST

- NOTES:
- When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
560Ω 56 × 10¹ 561.....RD4PS 561 J
47kΩ 47 × 10³ 473.....RD4PS 473 J
0.5Ω 0R5RN2H 0R5 K
1Ω 010RS1P 010 K
Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10¹ 5621RN4SR 5621 F
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.
★★ GENERALLY MOVES FASTER THAN ★
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
Parts marked by “⊙” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Miscellaneous Parts
P.C BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	TAPE assembly	GWM-464
	AF assembly	GWM-467
	EQ assembly	Non supply
	MIC assembly	Non supply
	VR assembly	Non supply
	LED assembly	Non supply
	LED assembly	Non supply

OTHERS

Mark	Symbol & Description	Part No.
⚠ ★	T1 Power transformer (AC 220V/240V)	ATS1006
⚠ ★★	FU1 Fuse (T1.25A)	AEK-508
⚠ ★★	FU3 Fuse (T1.6A)	AEK-510
⚠ ★★	FU4, FU5 Fuse (T2.5A)	AEK-511
⚠	AC Power cord (AC 240V)	ADG-051
⚠	Strain relief	AEC-882

TAPE Assembly (GWM-464)
SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC501 PRE AMP	BA3416L
★★	IC701 TR-ARRAY	LB1214
★★	IC703 OP-AMP IC	M5218LF
★★	IC801 DECK CONTROL	PDE013
★★	IC601 DOLBY-B IC	TA7719P
★★	IC503 E-SW IC	μPC1290C
★★	Q505, Q506, Q706, Q707, Q803, Q807	2SA1115 (2SA933S)

Mark	Symbol & Description	Part No.
★★	Q802	2SA1515
★★	Q511, Q512, Q518, Q601 Q602, Q703, Q704, Q705 Q708, Q709	2SC2603 (2SC1740S)
★★	Q701, Q702	2SD438
★★	Q710, Q711	2SC2878
★	D813	RD3.6ESB
★	D701—D706, D803, D807, D810, D812 D805	1SS131 RD5.1ESB

COIL, TRANSFORMER AND FILTERS

Mark	Symbol & Description	Part No.
	F601, F602 DOLBY Filter	ATF-210
	L701 Inductor	ATH-094
	L704, L705 Inductor	ATH-117
	L702, L703 Inductor	ATH-119
	L706, L707 Trap coil	ATM-037
	T701 Bias oscillator transformer	ATX-043

SWITCHES

Mark	Symbol & Description	Part No.
★★	S701 Push switch (NOISE REDUCTION ON/OFF)	SUJL2S

CAPACITORS

Mark	Symbol & Description	Part No.
	C701 (1500pF/630V)	ACE-133
	C513, C514, C747, C748	CCCSL101J50 (CCDSL101J50)

Mark	Symbol & Description	Part No.
	C751	CCCSL221J50 (CCDSL221J50)
	C803	CCCSL680J50 (CCDSL680J50)
	C705, C753	CCCSL101K500 (CCDSL101K500)
	C752, C706	CCDSL220K500
	C619, C620 C749	CEASR33M50 CEASR47M50
	C617, C618	CEASOR1M50
	C507, C508, C601, C602, C730, C731, C750, C804,	CEAS010M50
	C613, C614, C625, C801 C535	CEAS100M25 CEAS331M10
	C536, C623, C624, C711, C712, C732, C733	CEAS2R2M50
	C517, C518	CEAS220M16
	C509, C510, C622	CEAS221M10
	C715, C723	CEAS330M16
	C524, C525, C603, C604, C710	CEAS4R7M50
	C521, C537, C538, C621, C703, C704, C728, C729, C802	CEAS470M16
	C526, C527, C713, C714	CKCYB681K50 (CKDYB681K50)
	C605, C606	CKCYB821K50 (CKDYB821K50)
	C707, C709	CQMA103J50
	C702	CQMA123K50
	C708, C739, C740, C743, C744	CQMA153J50
	C609, C610	CQMA182J50
	C519, C520, C717, C722	CQMA273J50
	C724, C725	CQMA332J50
	C515, C516, C607, C608	CQMA333J50
	C611, C612	CQMA472J50
	C615, C616, C718, C719, C720, C721	CQMA473J50
	C726, C727	CQMA683J50

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
	VR703, VR704 Semi-fixed	VRTB6VS223
	VR701, VR702 Semi-fixed	VRTM6H104
	VR503, VR504 Semi-fixed	VRTM6H202
	R703, R825, R718	RD1/2PM□□□J
	R521, R621, R733, R787	RD1/4PM□□□J
	Other resistors	RD1/8PM□□□J

OTHER

Mark	Symbol & Description	Part No.
	Socket 12P (TUNER)	AKM-106

AF Assembly (GWM-467)
SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC101, IC102 OP-AMP IC	M5218P
⚠ ★★	IC401 AUDIO IC	STK4141-2S
⚠ ★★	IC402, IC403 REGURATOR IC	μPC78M12H
★★	Q401	2SB1015
★★	Q101—Q108, Q402, Q403	2SC1740S (2SC2603)
★★	Q404	2SD438
★	D401	KZL150
★	D402	RD13EB
⚠ ★	D407—D412	S5566 (11E2)
★	D417	RD5.1EB
★	D414	RD16EB
★	D102, D103, D415	1SS131
★	D403	1S2471
⚠ ★	D413	4D4B44 (RBV402)
★	D416	RD15ESB

SWITCHES AND RELLY

Mark	Symbol & Description	Part No.
⚠ ★★	S103 Push switch (POWER)	ASG-551
★★	S102 Push switch (STEREO WIDE)	ASG1002
★★	S101 Push switch (PHONO, CD, VIDEO, TUNER, TAPE)	SUJ8L22224L
⚠	RY401 Relly (PROTECTION)	ASR-111

COILS

Mark	Symbol & Description	Part No.
	L401, L402 AF Choke coil	ATH-053

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C433 (0.01μF/AC400V)	ACG1002
⚠	C430, C435 (0.01μF/150V)	ACG-190
⚠	C431, C432	ACH-249
	C101, C103, C110, C112, C403—C406	CCCSL101J50 (CCDSL101J50)
	C141, C142	CCCSL121J50
	C424	CEASR47M100
	C117, C118, C128, C121, C122, C130	CEAS010M50
	C119, C120, C411, C413, C416, C426, C428	CEAS100M50
	C135, C136	CEASR15M50
	C412, C434	CEAS101M50
	C102, C107, C111, C115, C125, C126, C131, C132, C137, C138, C401, C402	CEAS2R2M50
	C310, C317	CEAS220M16

Mark

⚠

RESIST

NOTE: W ii

Mark

⚠

⚠

⚠

⚠

⚠

⚠

⚠

⚠

⚠

OTHER

Mark

Mark	Symbol & Description	Part No.
△	C407—C410, C423, C425	CEAS221M25
	C427	CEAS332M25
	C106, C108, C109, C116,	CEAS470M25
	C129, C415, C417, C420,	
	C421	
	C414, C429	CEAS470M50
	C422	CEAS471M6
	C127, C440	CKCYF473Z50
		(CKDYF473Z50)
	C139, C140	CKCYB681K50
	C123, C124	CKCYB332K50
	C104, C113	CQMA242J50
	C418, C419, C441, C442	CQMA473K50
	C105, C114	CQMA822J50
	C133, C134	CQSA391J50

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
△	R441, R442	RD1/2PMFL100J
	R432, R437, R438, R424,	RD1/2PM□□□J
△	R425,	
	R419—R422	RD1/4PMF100J
△	R415	RD1/4PMFL101J
△	R413	RD1/4PMFL222J
	R403—R411, R414,	RD1/4PM□□□J
	R416—R418, R426—R430	
	R434	
△	R412, R435	RFA1/4PL101J
△	R433	RFA1/4PL121J
△	R423	RS1LMF681J
△	R443	RS2LMF271J
△	R431, R436	RS2LMF4R7J
△	R444	RS2LMF221J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal (OUTPUT) (2P)	AKB-093
	Terminal (INPUT, PHONO, CD, VIDEO) (6P)	AKB-095
	Terminal (SPEAKER)	AKE-109
	Mini jack (OUTPUT)	AKN-034
	6P Socket (TUNER)	AKP-083
	Rivet	AEC-940

EQ Assembly
SEMICONDUCTOR

Mark	Symbol & Description	Part No.
★★	IC301, IC302 AUDIO IC	BA3812L

CAPACITORS

Mark	Symbol & Description	Part No.
	C313, C326	CEASR15M50
	C315, C328	CEASR68M50
	C308, C323	CEAS101M10
	C301, C302	CEAS4R7M50
	C309	CEAS470M25
	C305, C318	CKCYB182K50
		(CKDYB182K50)
		CKCYB331K50
		(CKDYB331K50)
		CKCYB391K50
		(CKDYB391K50)
	C307, C322	
	C303, C320	
	C312, C325	CKCYB392K50
		(CKDYB392K50)
	C304, C321	CKCYB682K50
		(CKDYB682K50)
	C306, C319	CKCYX153M25
		(CKDYX153M25)
	C314, C327	CKCYX183M25
		(CKDYX183M25)
	C316, C329	CKCX393M25
		(CKCX393M25)
	C311, C324	CKCYX683M25
		(CKDYX683M25)

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★★	VR301 Slide variable resistor	ACU1001
	Other resistors	RD1/8PM□□□J

MIC Assembly
SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q202	2SA933S
		(JA101)
★★	Q201	2SC1740S
		(2SC2603)

CAPACITORS

Mark	Symbol & Description	Part No.
	C202	CEASR47M50
	C206	CEAS101M25
	C204	CEAS100M50
	C205	CEAS470M25
	C201	CKCYB102K50
		(CKDYB102K50)
	C203	CKCYB392K50
	C207, C208	CKCYF473Z50
		(CKDYF473Z50)

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	MIC jack (MIC)	AKN-052
	Mini jack (PHONES)	AKN1001

VR Assembly

Mark	Symbol & Description	Part No.
★★	VR401 (VOLUME)	ACU1002

LED Assembly
SEMICONDUCTOR

Mark	Symbol & Description	Part No.
★	D101 LED	AEL-443

LED Assembly
SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q902	2SC2603
★	D911 LED	AEL-382
★	D909, D910 LED	AEL-424
★	D908	1SS131

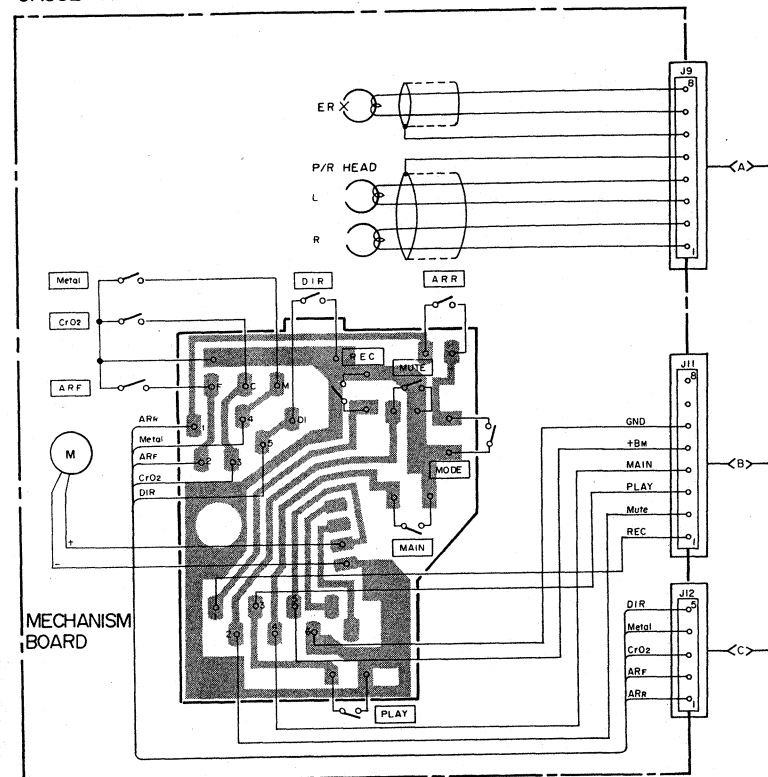
RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM□□□J

6. P.C.BOARDS CONNECTION DIAGRAM

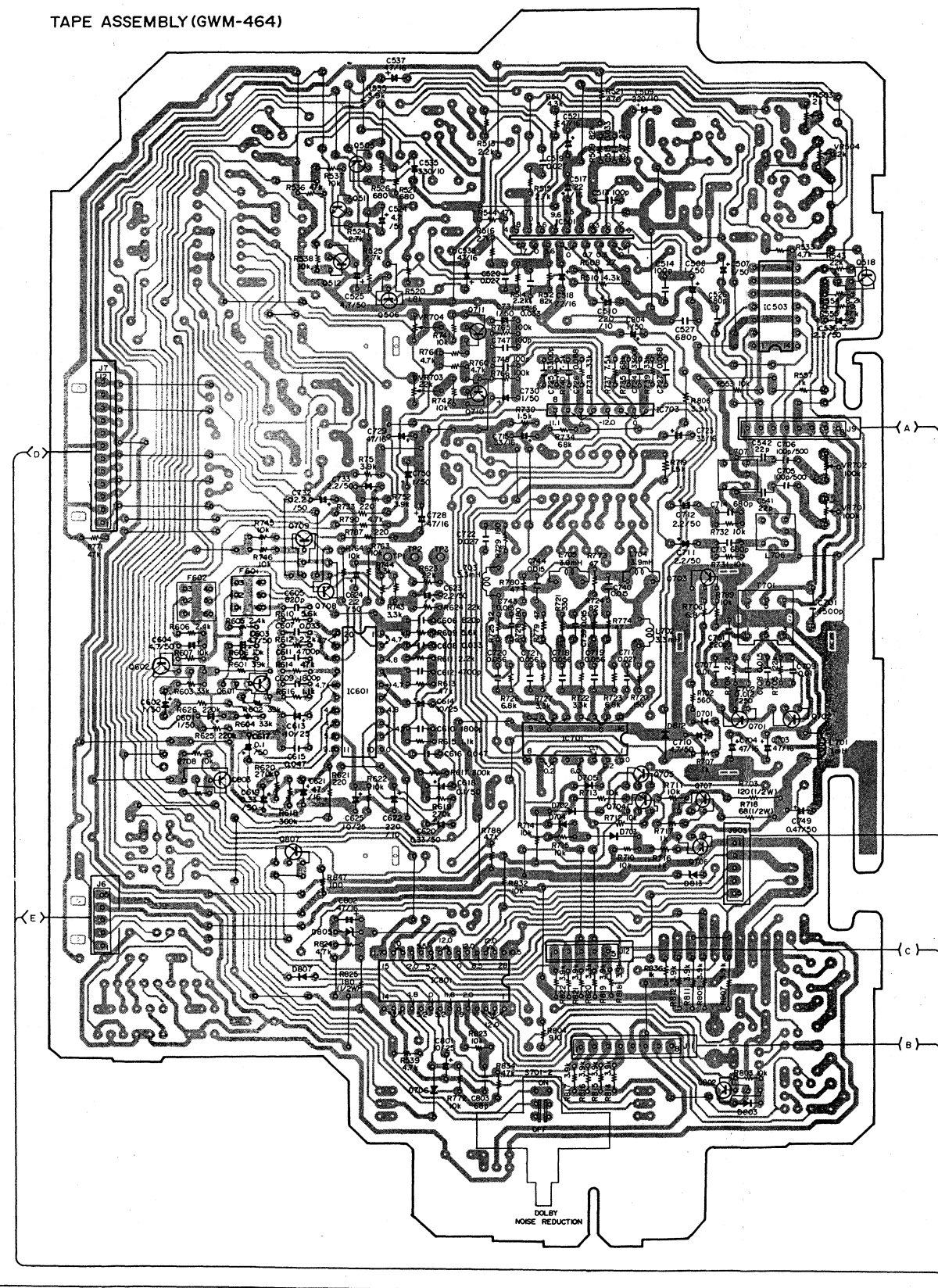
CASSETTE MECHANISM ASSEMBLY



MECHANISM BOARD

IC501	BA3416L	Q511, Q512, Q518,
IC503	μPC1290C	Q601, Q602, Q703-705,
IC601	TA7719P	Q706, Q709
IC701	LB1214	Q505, Q506, Q706, Q707,
		Q803, Q807
IC703	M5218LF	Q802
IC801	PDE013	Q701, Q702
		Q710, Q711
		D701 ~ D706, D803, D807, D812
		ISS131
		D805
		D813

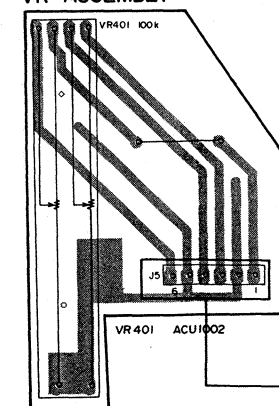
TAPE ASSEMBLY (GWM-464)



LED ASSEMBLY (B)

Q902	2SC2603
D906	(2SC1740S)
D909, 910	ISS131
D911	AEL-424
	AEL-382

VR ASSEMBLY



AF ASSEM

IC101, IC102	M5218P
IC402, IC403	μPC78M12H
IC401	STK4141-2S
Q101 ~ Q108, Q402, Q403	2SC1740S(2SC2603)
Q401	2SB1015
Q404	2SD438
D102, D103, D415	ISS131
D401	KZL150
D402	RD13EB
D403	IS2471
D407 ~ D412	S5566(1IE2)
D413	4D4844
D414	RD16EB
D416	RD15EB
D417	RD15EB

7

8

9

10

11

12

A

B

C

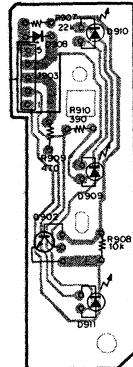
D

IC101 IC102 IC103 IC104 IC401 IC402 IC403 Q401 Q402 Q403 Q404 Q101 Q102 Q105 Q106 Q107 Q108

AF ASSEMBLY (GWM-467)

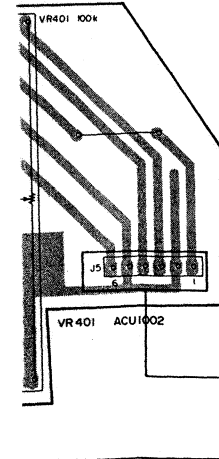
IC101, IC102 M5218P
IC402, IC403 μ PC78MI2H
IC401 STK4141-2S
Q101-Q108, Q402, Q403
2SC1740S (2SC2603)
Q401 2SB1015
Q404 2SD438
D102, D103, 1SS131
D415 KZL150
D401 RD13EB
D403 IS2471
D407-D412 S5566 (1IE2)
D413 4D4844 (RBV402)
D414 RD16EB
D416 RD15EB
D417 RD5JE8

LED ASSEMBLY (B)



Q902 2SC2603 (2SC1740S)
D908 1SS131
D909, D910 AEL-424
D911 AEL-382

SS ASSEMBLY

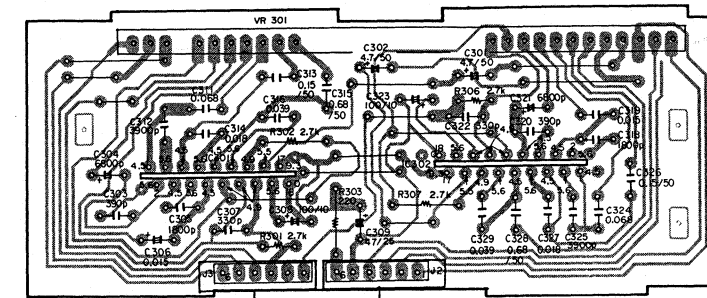


VR401 ACU1002

SPEAKERS

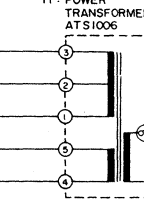
SURROUND SPEAKERS

EQ ASSEMBLY

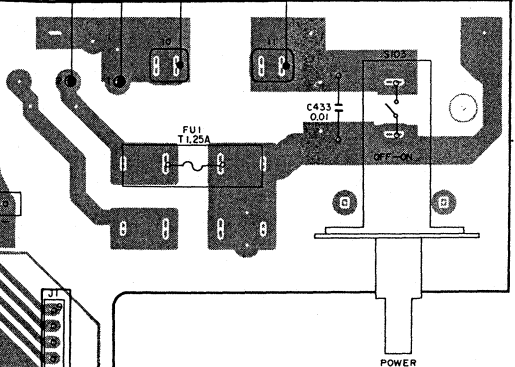


IC301, IC302 BA3812L

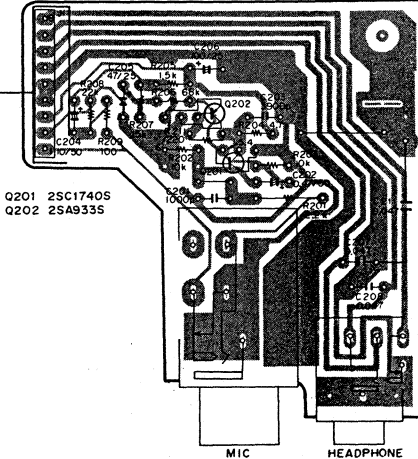
POWER TRANSFORMER AT1006



AC POWER CORD
ADG-051
AC 240V
50/60Hz



MIC ASSEMBLY

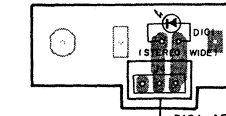


Q201 2SC1740S
Q202 2SA933S

MIC

HEADPHONE

LED ASSEMBLY (A)



D101 AEL-443

7

8

9

10

11

12

1

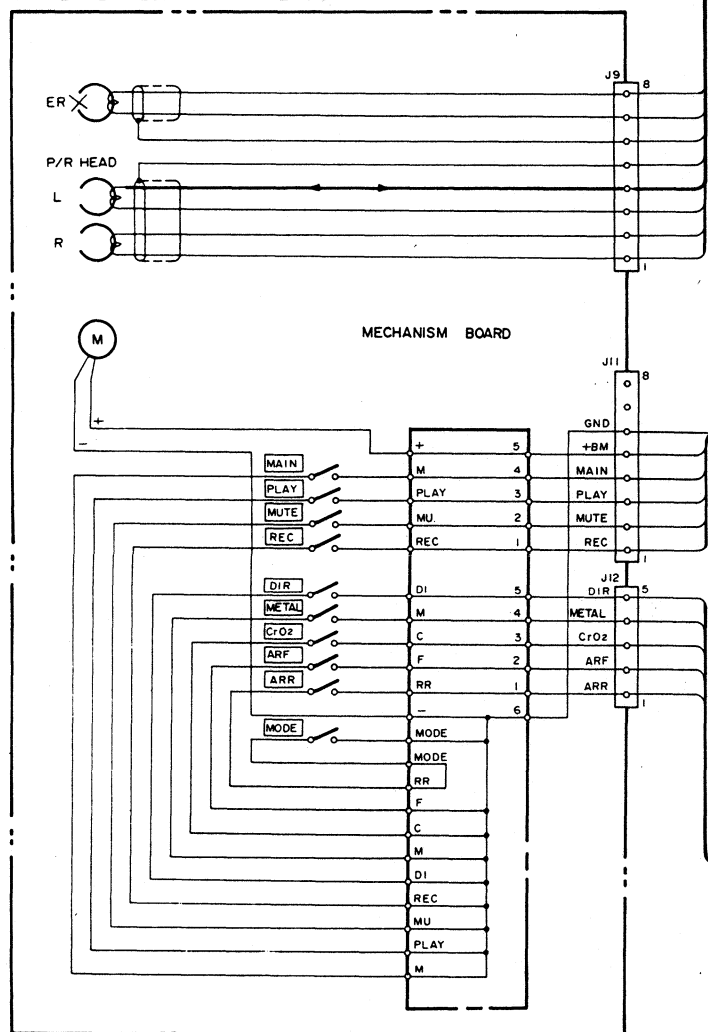
2

3

7. SCHEMATIC DIAGRAM

TAPE ASSEMBLY (GWM-464)

CASSETTE MECHANISM ASSEMBLY



IC501 BA3416L
IC701 LB1214
IC703 MS218LF
IC801 PDE013
IC601 TA7719P
IC503 μ PC1290C

Q505,506,706,707,803,807
Q802
Q511,512,518,601,602,
703-705,708,709
Q710,711
Q701,702
D805

D701-706,803,807,812
D813
C701

ACE-133

F601,602

ATF-210

L701

ATH-094

L704,705

ATH-117

L702,703

ATH-119

L706,707

ATM-037

T701

ATX-043

S701

SUJL25

LED ASSEMBLY (B)

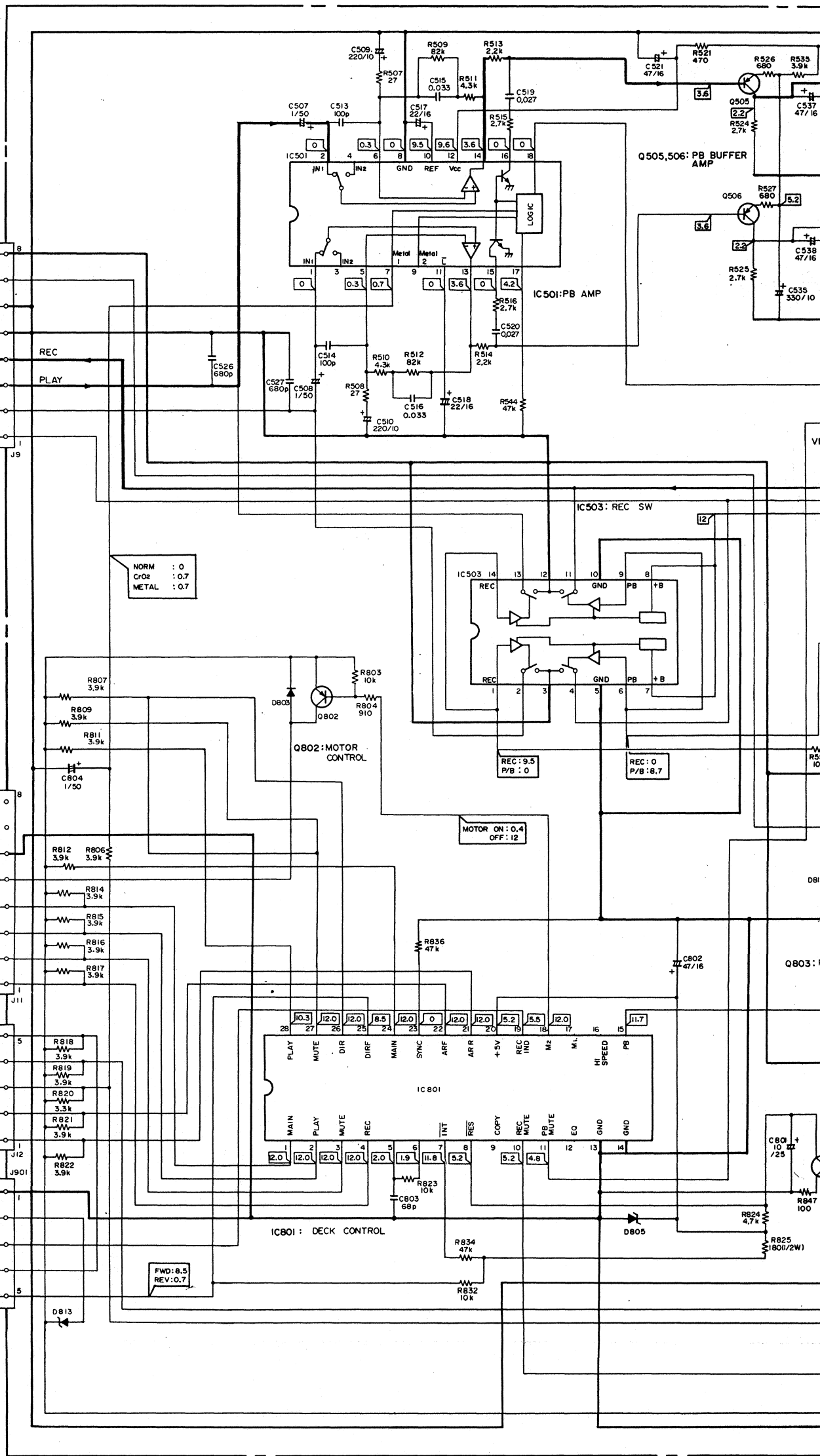
O902 2SC2603 (2SC1740S)
D911 AEL-382
D909,910 AEL-424
D908 1SS131

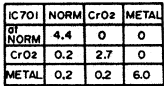
2SA1115 (2SA933S)
2SA1515
2SC2603 (2SC1740S)
2SC2878
2SD438
RD5.1ESB

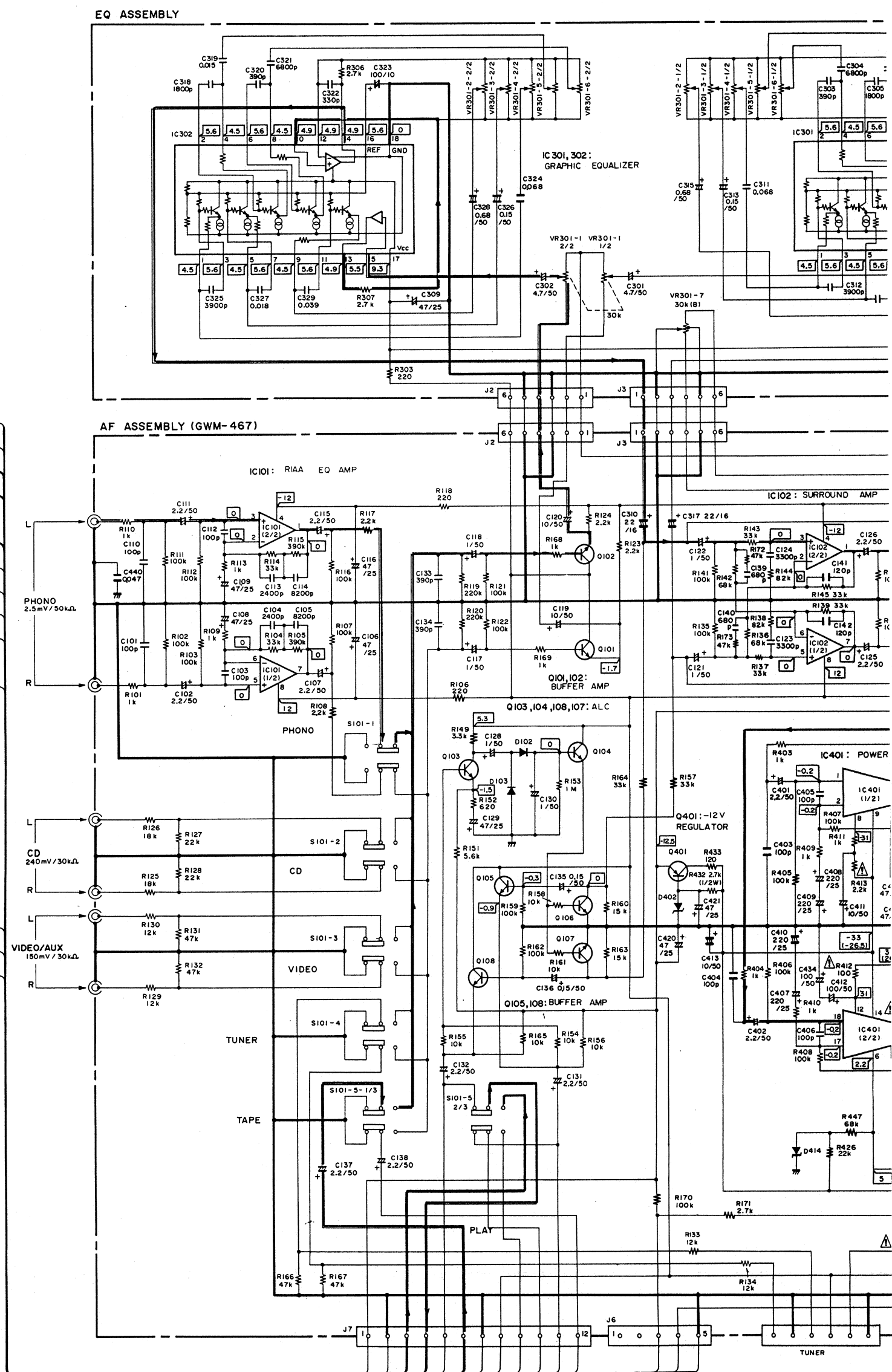
1SS131
RD3.6ESB

R908 10k
R909 470
D909
D908
R910 390
R909 22k

REC IND
DTR R
DIR F







NOTE:

The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.

1. RESISTORS:
Indicated in Ω , 1/4W, 1/6W and 1/8W, $\pm 5\%$ tolerance unless otherwise noted k; k Ω , M; M Ω , (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance
2. CAPACITORS:
Indicated in capacity (μ F)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE, CURRENT:
[V]: Signal voltage at 32 W + 32 W, 8 Ω output (1 kHz)
[V]: DC voltage (V) at no input signal Value in () is DC voltage at rated power.
[mA]: DC current at no input signal
4. OTHERS:
[]: Signal route.
[]: Adjusting point.
The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
* marked capacitors and resistors have parts numbers.
The underlined indicates the switch position.
5. SWITCHES:
THE UNDERLINED INDICATES THE SWITCH POSITION
TAPE ASSEMBLY
S701-2 NOISE REDUCTION ON-OFF

AF ASSEMBLY

S101-1 FUNCTION PHONO	ON-OFF
S101-2 FUNCTION CD	ON-OFF
S101-3 FUNCTION VIDEO	ON-OFF
S101-4 FUNCTION TUNER	ON-OFF
S101-5 FUNCTION TAPE	ON-OFF
S102 SURROUND STEREO WIDE	ON-OFF
S103 POWER	ON-OFF

OTHERS

CASSETTE MECHANISM ASSEMBLY

MAIN	ON-OFF
PLAY	ON-OFF
MUTE	ON-OFF
REC	ON-OFF
DIR	ON-OFF
Metal	ON-OFF
CrO ₂	ON-OFF
ARF	ON-OFF
ARR	ON-OFF

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

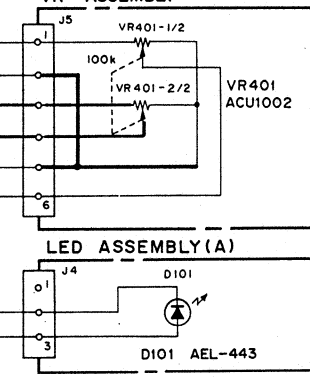
THE UNDERLINED INDICATES THE SWITCH POSITION
TAPE ASSEMBLY
S701-2 NOISE REDUCTION ON-OFF

AF ASSEMBLY

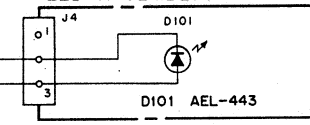
IC101,102	M5218P	C433	ACG1002
IC401	STK4141-2S	C430,435	ACG-190
IC402,403	JPC78M12H	C431,432	ACH-249
Q401	2SB1015	FU1	AEK-507
Q101-108, 402,403	2SC1740S (2SC2603)	FU3	AEK-510
Q404	2SD438	FU4,5	AEK-511
D401	KZL150		
D402	RD13EB		
D407-D412	S5566 (11E2)		
D102,103,415	1SS131		
D403	1S2471		
D413	4D4B44 (RBV402)		
D414	RD16EB		
D416	RD15EB		
D417	RD51EB		
S101	SUJ8L22C24L		
S102	ASG1002		
S103	ASG-551		
RY401	ASR-111		
L401,402	ATH-053		

Q201	2SC1740S
Q202	2SA9335
MIC	AKN-052
PHONE	AKN1001
SPKERS	AKE-109
PHONO	AKN-034
POWER CORD	ADG-051
AC 240V	50/60Hz
TI: ATS1006	

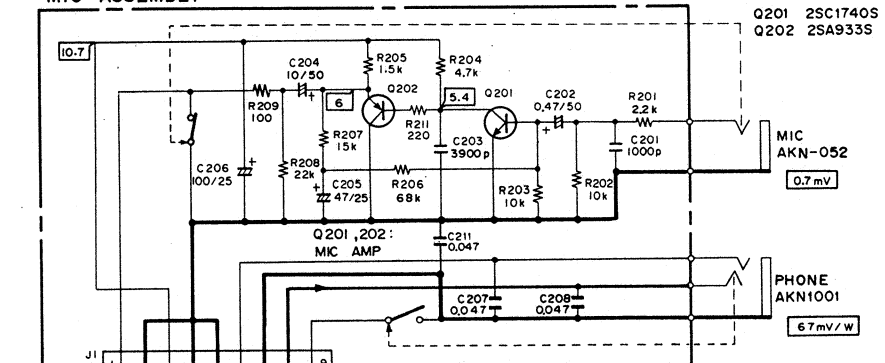
VR ASSEMBLY



LED ASSEMBLY(A)



MIC ASSEMBLY



Q404: RELAY DRIVE

Q403: +DC DETECTION

Q402: -DC DETECTION

Q401: 12V REGULATOR (MOTOR)

Q400: 12V REGULATOR (SIGNAL CIRCUIT)

Q400: 12V REGULATOR (SIGNAL CIRCUIT)

Q400: 12V REGULATOR (SIGNAL CIRCUIT)

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Q400: 12V REGULATOR (SIGNAL CIRCUIT)

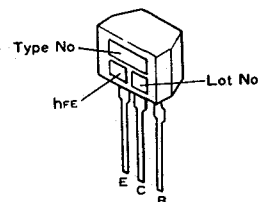
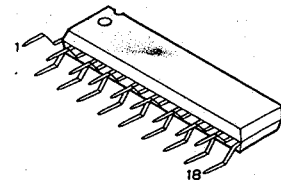
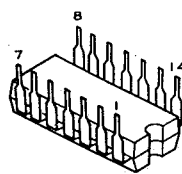
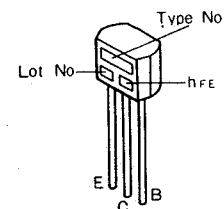
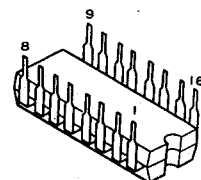
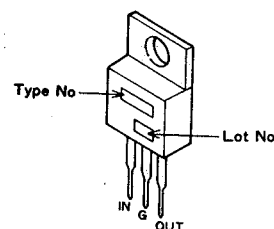
Q400: 12V REGULATOR (SIGNAL CIRCUIT)

Q400: 12V REGULATOR (SIGNAL CIRCUIT)

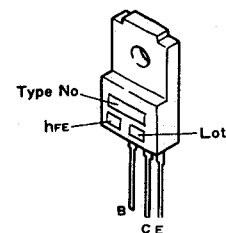
Q400: 12V REGULATOR (SIGNAL CIRCUIT)

Q400: 12V REGULATOR (SIGNAL CIRCUIT)

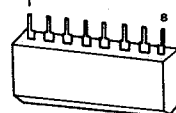
External Appearance of Transistors and ICs

2SA933S
2SC1740SBA3812L
BA3416L μ PC1290C2SA1115
2SC2603LB1214
PDE013 μ PC78M12H

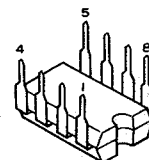
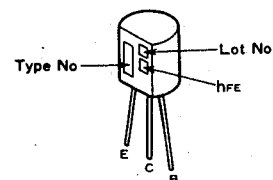
2SB1015



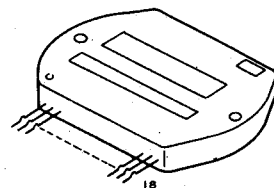
M5218LF



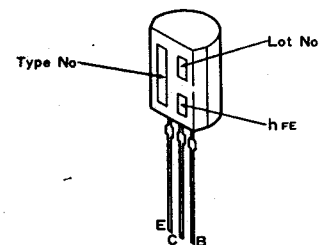
M5218P

2SA1515
2SC2878

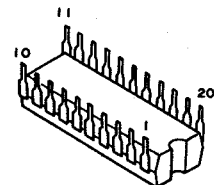
STK4171



2SD438



TA7719F



8. EXPLODED VIEWS

8.1 Exterior

NOTES:

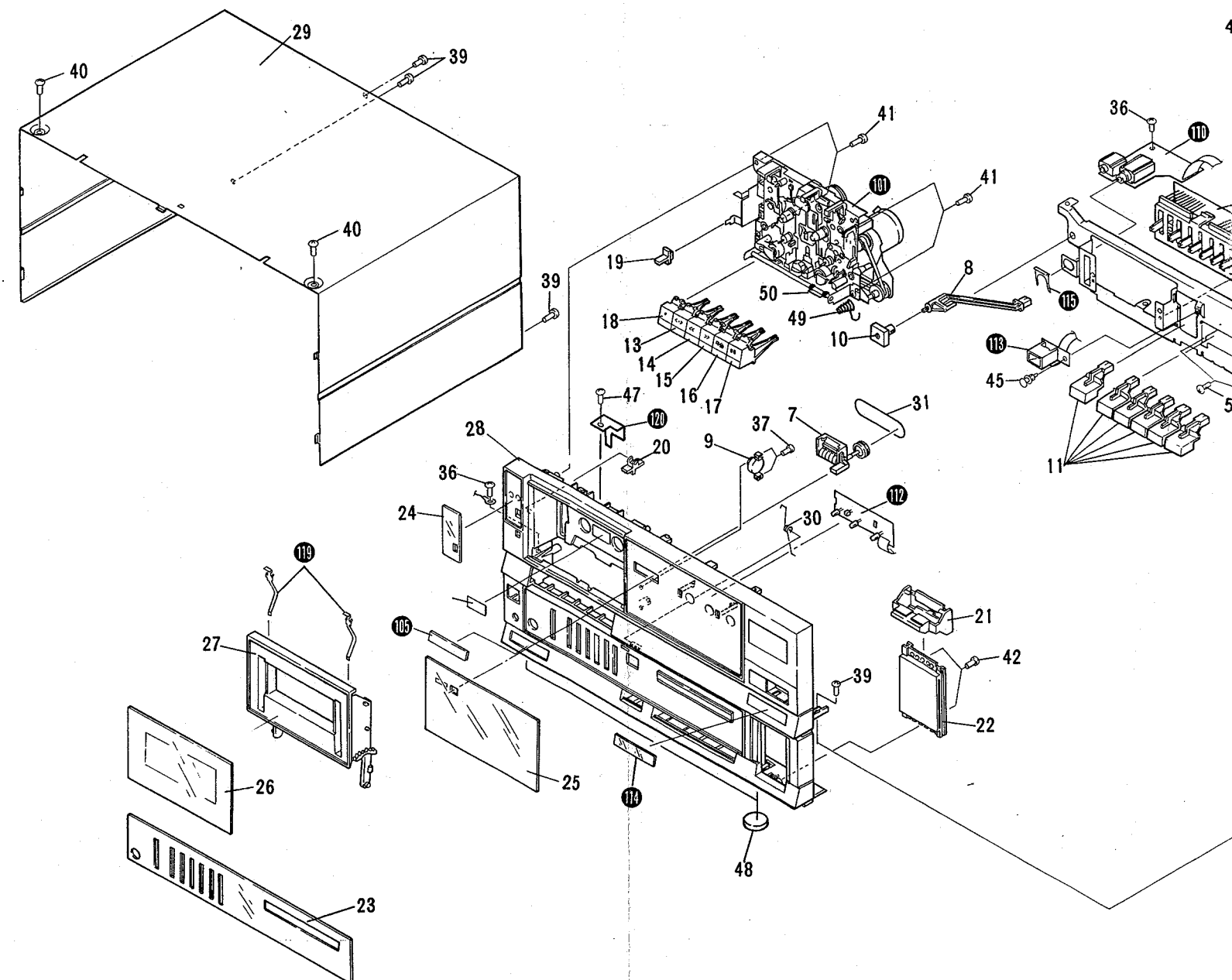
- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks $\star\star$ and \star .
 $\star\star$ GENERALLY MOVES FASTER THAN \star
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "©" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

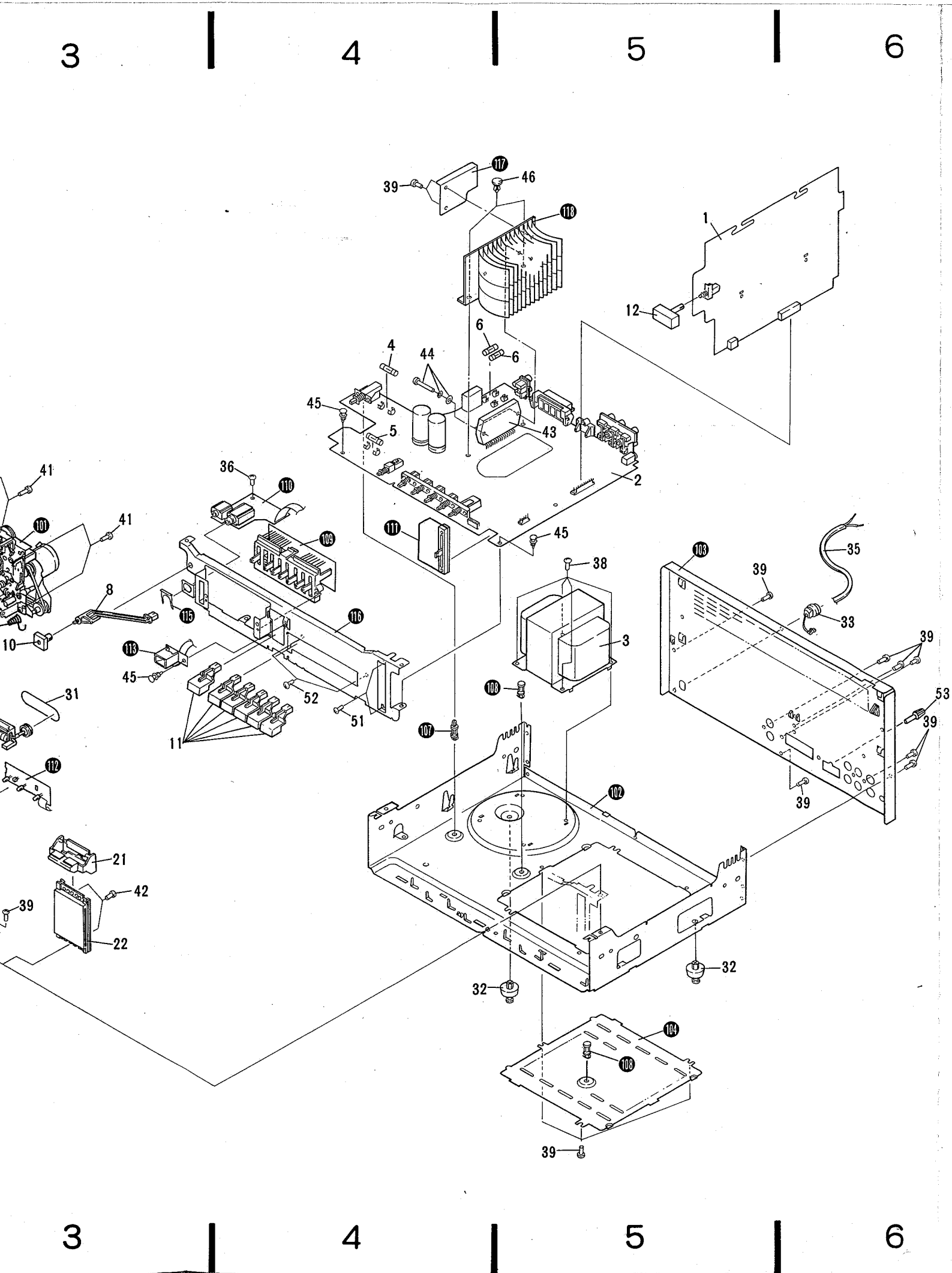
A

B

C

D





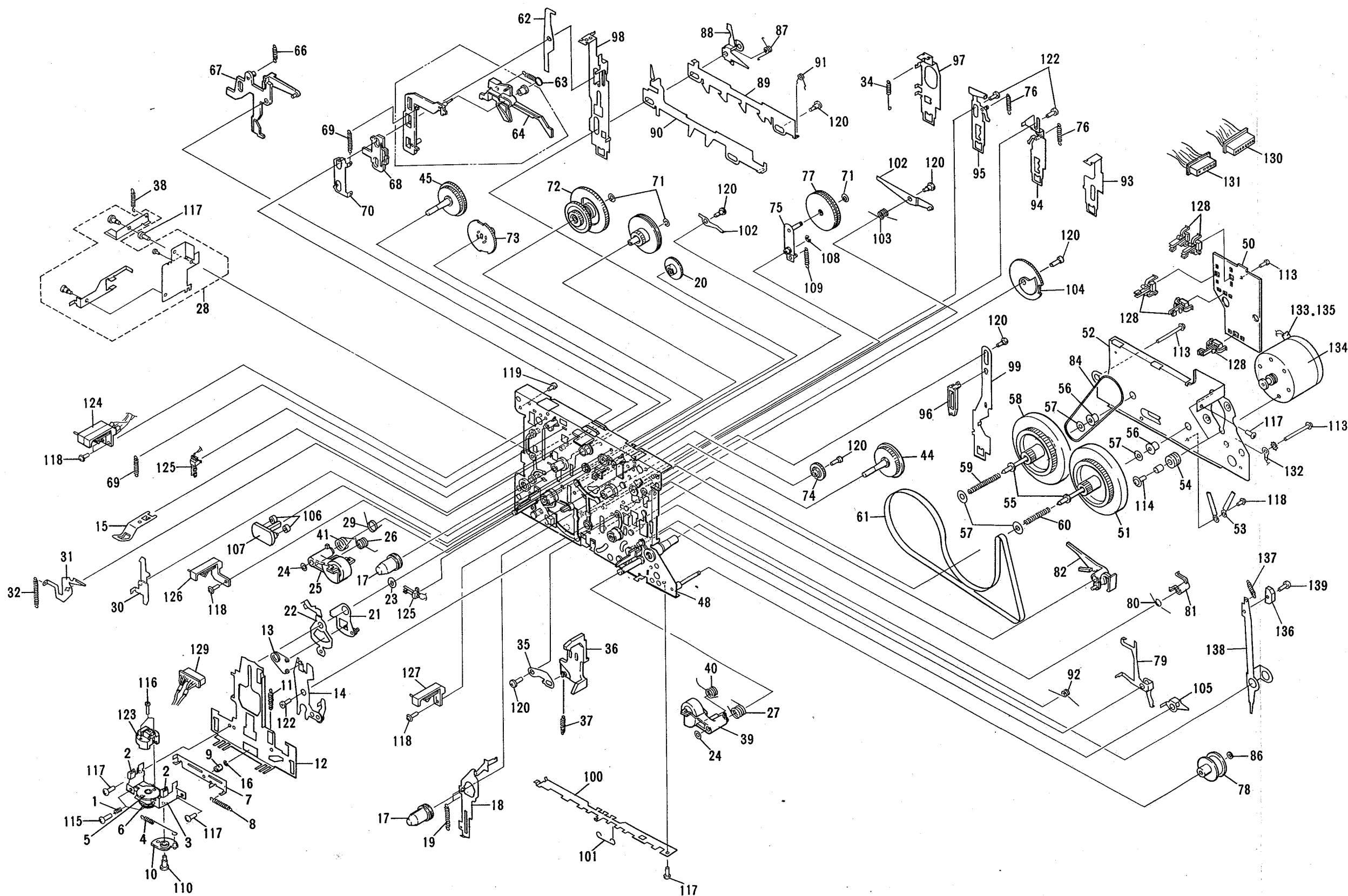
Parts List

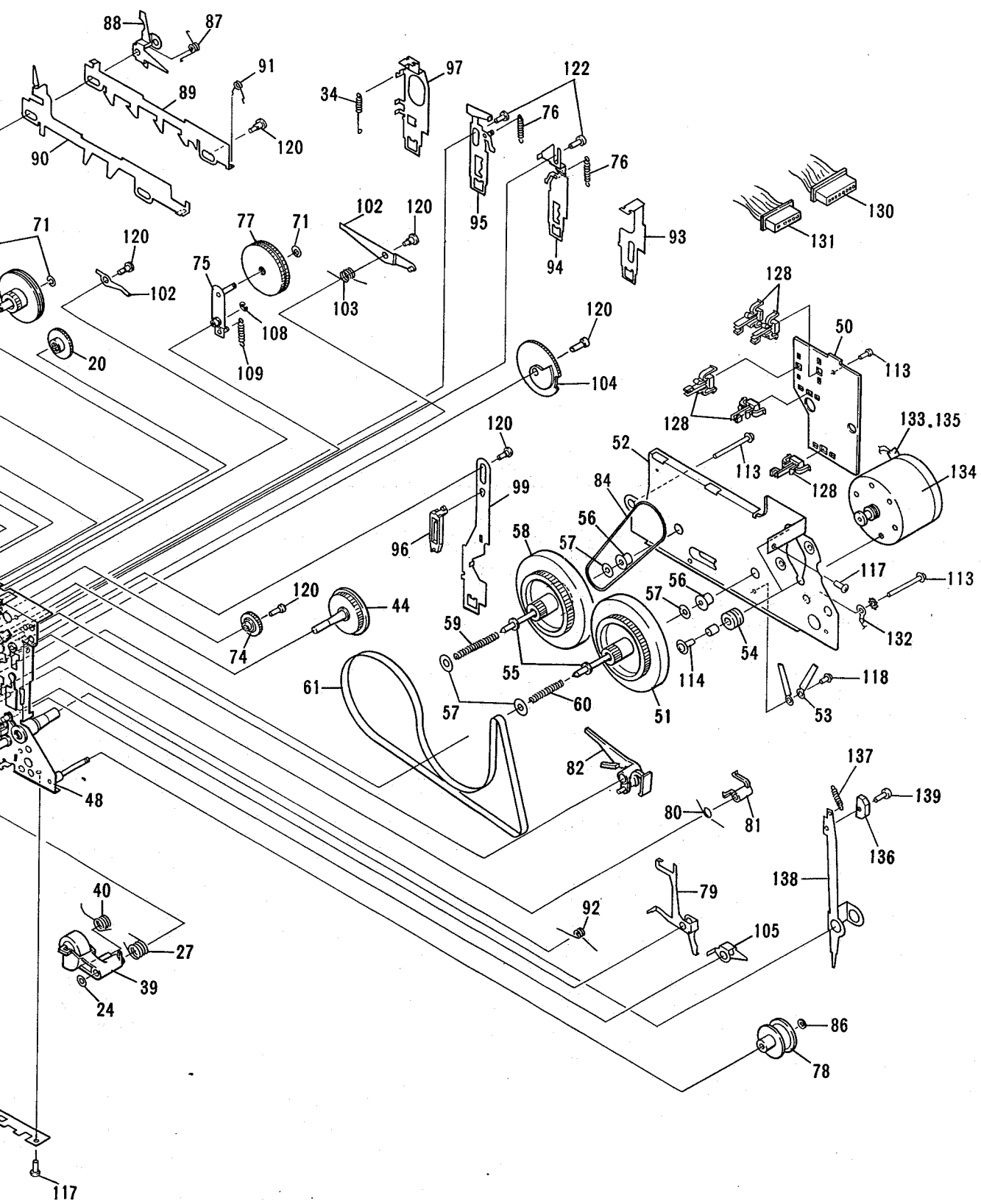
Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	GWM-464	TAPE assembly	25	AAK 1014	Deck panel (B)	
	2	GWM-467	AF assembly	26	AAK1015	Door panel	
△ ★	3	ATS1006	Power transformer (T1) (AC 220V/240V)	27	AAN1001	Door	
△	4	AEK-508	Fuse (FU1 T1.25A)	28	AMB 1009 (Black type) AMB 1051 (Silver type)	Front panel	
△	5	AEK-510	Fuse (FU3 T1.6A)	29	ANE1002 (Black type) ANE1031 (Silver type)	Bonnet case	
△	6	AEK-511	Fuse (FU4, FU5 T2.5A)	30	ABH1001	Coil spring	
	7	AAW1001	Counter	★ 31	AEB-308	Counter belt	
	8	AMR1003	Power joint	32	AEC-847	Leg assembly	
	9	AMR1006	Damper assembly	33	AEC-882	Strain relief	
	10	AAD1003 (Black type) AAD1029 (Silver type) AAD1004 (Black type) AAD1030 (Silver type)	Knob (POWER)	34	ABA1003	Screw	
	11		Knob (STEREO WIDE, TUNER, CD, PHONO, TAPE)	35	ADG-051	AC Power cord	
	12	AAD1005 (Black type) AAD1031 (Silver type)	Knob (DOLBY NR OFF-ON)	36	BBT30P080FMC	Screw	
	13	AAE1001 (Black type) AAE1018 (Silver type)	Knob A (PLAY)	37	BBZ20P100FMC	Screw	
	14	AAE1002 (Black type) AAE1019 (Silver type)	Knob B (FAST)	38	BBZ30P060FZK	Screw	
	15	AAE1003 (Black type) AAE1020 (Silver type)	Knob C (FAST)	39	BBZ30P080FZK	Screw	
	16	AAE1004 (Black type) AAE1021 (Silver type)	Knob D (STOP/EJECT)	40	VPZ30P080FZK (Black type) VPZ30P080FUC (Silver type)	Screw (BLACK) Screw (SILVER)	
	17	AAE1027 (Black type) AAE1028 (Silver type)	Knob E (PAUSE)	41	VPZ30P100FMC	Screw	
	18	AAE1006 (Black type) AAE1023 (Silver type) AAE1008 AAE1009 AAE1010 (Black type) AAE1025 (Silver type)	Knob F (REC) Knob (REVERSE MODE, REC/PLAY) Knob (DIRECTION) Knob (VOLUME)	42	BPZ30P080FZK	Screw	
	19			43	STK4141-2S	AUDIO IC	
	20			44	ABA-271	Screw	
	21			45	AEC-525	Rivet	
	22	AAK1001 (Black type) AAK1065 (Silver type) AAK1002	VOLUME base AMP panel	46	AEC-940	Rivet	
	23			47	BBZ30P040FMC	Screw	
	24	AAK 1013 (Black type) AAK 1073 (Silver type)	Deck panel (A)	48	AEB1012	Non slip sheet	
				49	ABH1010	Sub spring	
				50	ABH1008	PAUSE spring	
				51	PMZ20P030FZK	Screw	
				52	VMZ30P060FMC	Screw	
				53	ABA-176	Earth terminal	
				101		Cassette mechanism (Tape transport unit) assembly	
				102		Chassis	
				103		Rear panel	
				104		Bottom plate	
				105		AMP bage	
				106		.....
				107		P.C.B Holder	
				108		P.C.B Support	
				109		EQ assembly	
				110		MIC assembly	
				111		VR assembly	
				112		LED assembly	
				113		LED assembly	
				114		Deck bage	
				115		Mount plate	
				116		Unit stay	
				117		Heat sink holder	
				118		Heat sink	
				119		Plate	
				120		Mount plate	

Transport Unit

Parts List of Tape Transp

Mark	No.	Part No.
A	1	AZN1055
	2	AZN1056
	3	AZN1057
	4	AZN1059
	5	AZN1060
	6	AZN1062
	7	AZN1063
	8	AZN1064
	9	AZN1065
	10	AZN1066
B	11	AZN1067
	12	AZN1068
	13	AZN1069
	14	AZN1070
	15	AZN1071
	16	AZN1072
	17	AZN1073
	18	AZN1074
	19	AZN1075
	20	AZN1076
C	21	AZN1077
	22	AZN1078
	23	AZN1079
	24	AZN1080
	25	AZN1081
	26	AZN1082
	27	AZN1083
	28	AZN1084
	29	AZN1085
	30	AZN1086
D	31	AZN1087
	32	AZN1088
	33	AZN1089
	34	AZN1090
	35	AZN1091
	36	AZN1092
	37	AZN1093
	38	AZN1094
	39	AZN1095
	40	AZN1096
	41	AZN1097
	42	AZN1098
	43	AZN1099
	44	AZN1100
	45	AZN1101
	46	AZN1103
	47	AZN1112
	48	AZN1105
	49	AZN1106
	50	AZN1111



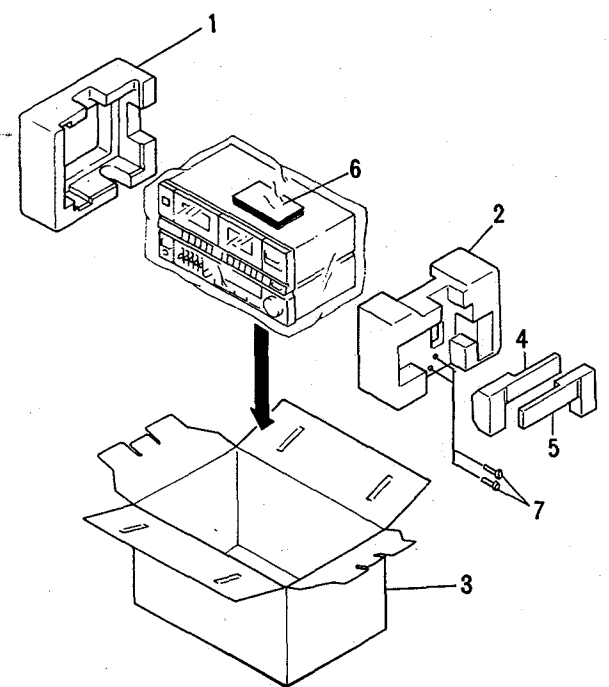


Parts List of Tape Transport Unit

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	AZN1055	Pressure spring	51	AZN1113	Flywheel assembly (R)	
	2	AZN1056	Tape guide	52	AZN1114	F/W base plate	
	3	AZN1057	Metal assembly	53	AZN1115	Wire holder assembly	
	4	AZN1059	Head GR spring	54	AZN1116	Gom washer	
	5	AZN1060	Head holder assembly	55	AZN1118	P washer	
	6	AZN1062	Head gear (A)	56	AZN1119	Metal	
	7	AZN1063	Slide plate assembly	57	AZN1120	P washer 2.6x8x0.13	
	8	AZN1064	Slide plate spring	58	AZN1121	Flywheel assembly (L)	
	9	AZN1065	Collar	59	AZN1122	Pressure spring (black)	
	10	AZN1066	Head gear (B)	60	AZN1123	Pressure spring (white)	
	11	AZN1067	Return spring	61	AZN1124	Flat belt	
	12	AZN1068	Head base	62	AZN1125	Rerease lever	
	13	AZN1069	Reverse spring	63	AZN1126	Spring	
	14	AZN1070	Pinch lever assembly	64	AZN1127	Detector lever assembly	
	15	AZN1071	Harf set arm	65	AZN1128	Spring	
	16	AZN1072	P washer	66	AZN1129	Spring	
	17	AZN1073	Real claw	67	AZN1130	DIR lever	
	18	AZN1074	Sub-plate assembly	68	AZN1131	Mode lever	
	19	AZN1075	Head-return spring	69	AZN1132	Coiled spring	
	20	AZN1076	Idler gear	70	AZN1133	Mode plate	
	21	AZN1077	Idler assembly	71	AZN1134	P washer 1.6x4x0.25	
	22	AZN1078	Reverse assembly A	72	AZN1135	Tension pulley assembly	
	23	AZN1079	P washer 1.3x3x0.25	73	AZN1136	Reverse gear	
	24	AZN1080	P washer	74	AZN1137	FWD gear	
	25	AZN1081	Pinch arm assembly	75	AZN1138	FF idler assembly	
	26	AZN1082	Twist spring	76	AZN1139	FF REW gear spring	
	27	AZN1083	Pinch roller-return spring	77	AZN1140	FF idler assembly	
	28	AZN1084	Mounting plate assembly	78	AZN1141	Idler assembly	
	29	AZN1085	Rec prevent spring	79	AZN1142	Anti-detect plate	
	30	AZN1086	Rec prevent plate	80	AZN1143	Twist spring	
	31	AZN1087	MO joint plate	81	AZN1144	Clutch stopper	
	32	AZN1088	Coiled spring	82	AZN1145	Anti-detect lever	
	33	AZN1089	Reverse sub-plate	83	AZN1146	Drive pulley	
	34	AZN1090	Reverse spring	84	AZN1147	Square belt	
	35	AZN1091	Latch slide plate	85		.....
	36	AZN1092	Latch lever	86	AZN1151	Washer	
	37	AZN1093	Latch-return spring	87	AZN1152	SW drive spring	
	38	AZN1094	DIR lever spring	88	AZN1153	SW push plate	
	39	AZN1095	Pinch arm assembly (R)	89	AZN1155	REC/PB side stopper plate	
	40	AZN1096	Twist spring	90	AZN1156	Stopper plate	
	41	AZN1097	Pinch roller-return spring	91	AZN1157	Stopper plate spring	
	42	AZN1098	Button holder	92	AZN1158	Stop pause spring	
	43	AZN1099	Collar	93	AZN1160	Stop plate	
	44	AZN1100	Reel base assembly (R)	94	AZN1161	FF plate assembly	
	45	AZN1101	Reel base assembly (F)	95	AZN1162	REW plate assembly	
	46	AZN1103	Button shelt	96	AZN1163	PAUSE arm	
	47	AZN1112	Reinforced plate	97	AZN1164	PLAY plate	
	48	AZN1105	Mechanism assembly	98	AZN1165	REC plate	
	49	AZN1106	Button holder (L)	99	AZN1166	PAUSE plate	
	50	AZN1111	P.C. board (II)	100	AZN1168	Button holder plate	

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
101	AZN1169	Lead clamber		121	AZB1046	Bind screw	
102	AZN1170	Assist arm assembly		122	AZB1047	Bushing	
103	AZN1171	Trigger return spring		123	AZP1006	Head assembly	
104	AZN1172	Assist gear				(REC/PB and ERASE)	
105	AZN1173	Pause arm		124	AZS1012	Leaf switch (ARF SW)	
				125	AZS1013	Leaf switch	
106	AZN1174	Collar (B)		126	AZS1014	Leaf switch (Metal SW)	
107	AZN1175	Reverse cam assembly		127	AZS1015	Leaf switch (ARR SW)	
108	AZN1177	E-ring		128	AZS1016	Leaf switch (P.C. board)	
109	AZN1179	FF idler plate spring		129	AZK1029	8P connector	
110	AZB1032	Step screw		130	AZK1030	8P connector	
111	AZB1033	Step screw		131	AZK1031	5P connector	
112	AZB1034	Washer		132	AZD1003	Ground wire	
113	AZB1036	Flange screw		133	AZD1005	Jumper	
114	AZB1037	Motor mounting screw		134	AZX1006	Motor assembly	
115	AZB1038	Pan-screw		135	AZD1006	Jumper	
116	AZB1039	Screw		136	AZN1148	Magnet	
117	AZB1040	Screw		137	AZN1149	Magnet spring	
118	AZB1041	Flange screw		138	AZN1150	Magnet arm	
119	AZB1042	FT screw		139	AZB1043	Screw	
120	AZB1045	Bushing					

9. PACKING



Parts List

Mark	No.	Part No.	Description
	1	AHA1001	Side pad (L)
	2	AHA1002	Side pad (R)
	3	AHD1007	Packing case
		(Black type)	
		AHD1054	
		(Silver type)	
	4	AMR1060	Player stand (L)
		(Black type)	
		AMR1062	
		(Silver type)	
	5	AMR1061	Player stand (R)
		(Black type)	
		AMR1063	
	6	ARB1001	Operating instruction (English)
	7	ABA1003	Screw

10.

10-1.

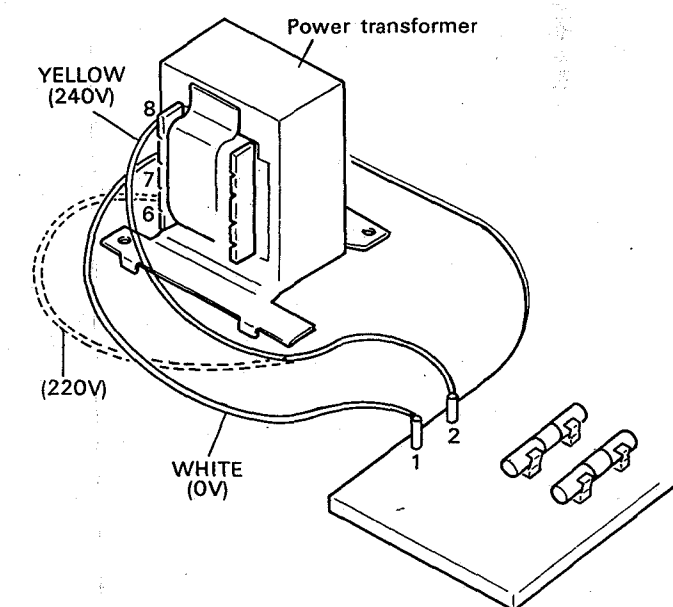
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LINE VOLTAGE SELECTION (FOR HE AND HB TYPES)

Line voltage can be changed as follows:

- 1. Disconnect the AC power cord.
- 2. Remove the bonnet case.
- 3. Change the connection of the power transformer primary taps.
- 4. Stick the line voltage lable on the rear panel.

Description	Part No.
220V label	AAX-193
240V label	AAX-192



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rew

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EC/PB and ERASE)
itch (ARF SW)
itch

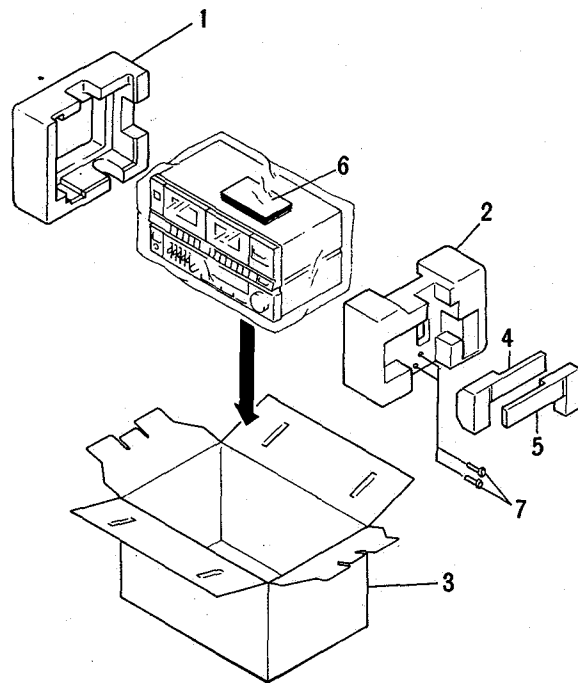
itch (Metal SW)
itch (ARR SW)
itch (P.C. board)
ector
ector

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sembly

pring
arm

9. PACKING



Parts List

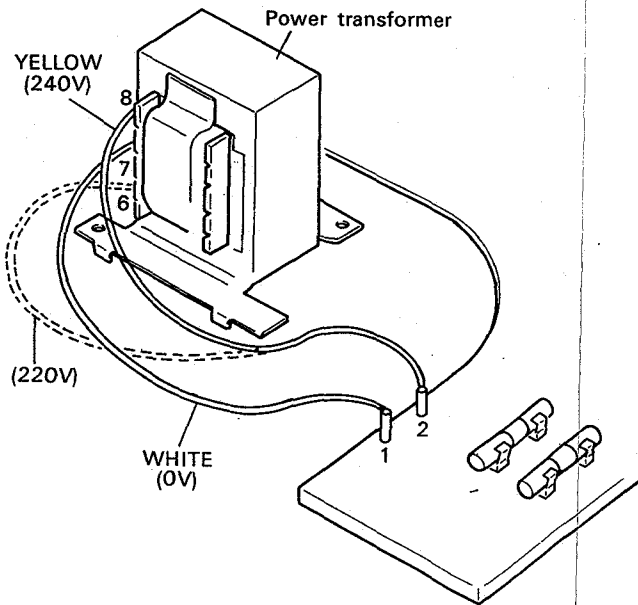
Mark	No.	Part No.	Description
	1	AHA1001	Side pad (L)
	2	AHA1002	Side pad (R)
	3	AHD1007	Packing case
		(Black type)	
		AHD1054	(Silver type)
	4	AMR1060	Player stand (L)
		(Black type)	
		AMR1062	(Silver type)
	5	AMR1061	Player stand (R)
		(Black type)	
		AMR1063	
	6	ARB1001	Operating instruction (English)
	7	ABA1003	Screw

LINE VOLTAGE SELECTION (FOR HE AND HB TYPES)

Line voltage can be changed as follows:

1. Disconnect the AC power cord.
2. Remove the bonnet case.
3. Change the connection of the power transformer primary taps.
4. Stick the line voltage label on the rear panel.

Description	Part No.
220V label	AAX-193
240V label	AAX-192



10. ADJUSTMENTS

10-1. TAPE SPEED ADJUSTMENT

1. Connect the frequency counter to TP1 and TP3(GND).
2. Mount the test tape STD-301 onto deck.
3. Put the deck into play mode and adjust the tape speed so that the playback signal frequency becomes $3010\text{Hz} \pm 5\text{Hz}$ by inserting a screwdriver into the motor adjustment slot.

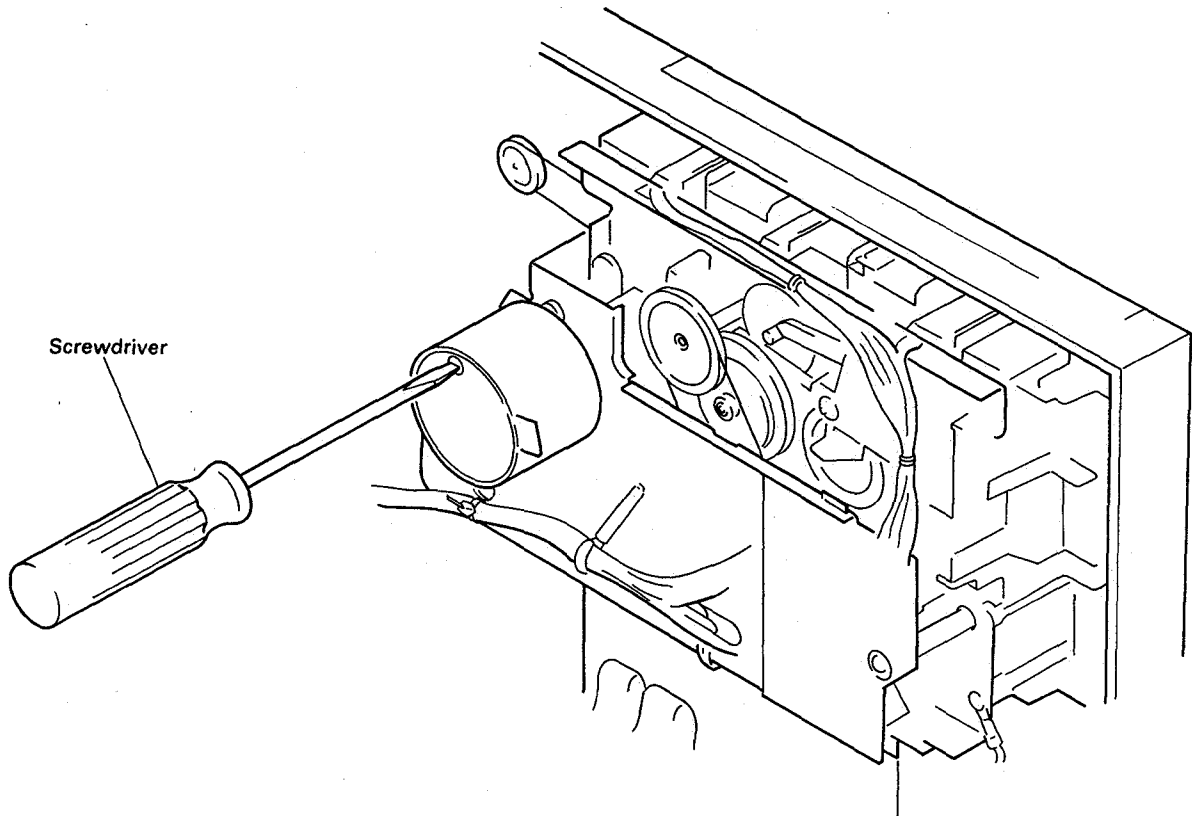


Fig. 10-1 Tape speed adjustment

10-2. ELECTRICAL ADJUSTMENTS

■ Before commencing any electrical adjustments, make sure the following checked/completed.

1. All mechanical adjustments must have been completed.
2. The heads must be clean and demagnetized.
3. 0 dBv = 1V during level measurements.
4. Use the specified tapes for each adjustment.
Although test tapes have both A and B sides, only use side A where the label is attached.
STD-331B: Playback adjustment
STD-608A: NORMAL blank tape
STD-620: CrO₂ blank tape
STD-610: METAL blank tape
5. Prepare the following measuring equipment.
AC millivoltmeter, audio generator, attenuator, oscilloscope.
6. Adjust both left and right channels unless otherwise specified.
7. And unless indicated otherwise, leave the DOLBY NR switch in the OFF position.

8. Let the set warm up for at least a few minutes before commencing adjustments. And before commencing the record/playback frequency response adjustment, let the set "age" for three to five minutes.
9. Always adjust the set in the given adjustments order. If the order is changed, proper adjustment will not be possible, and this may result in loss of performance.

Adjustment Procedure

1. Head azimuth adjustment
2. Playback level adjustment
3. Recording/Playback frequency response
4. Recording level adjustment

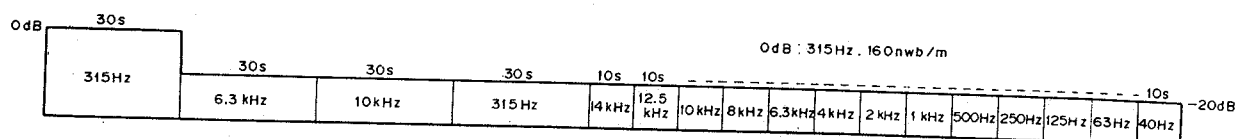


Fig. 10-2 Test tape STD-331B

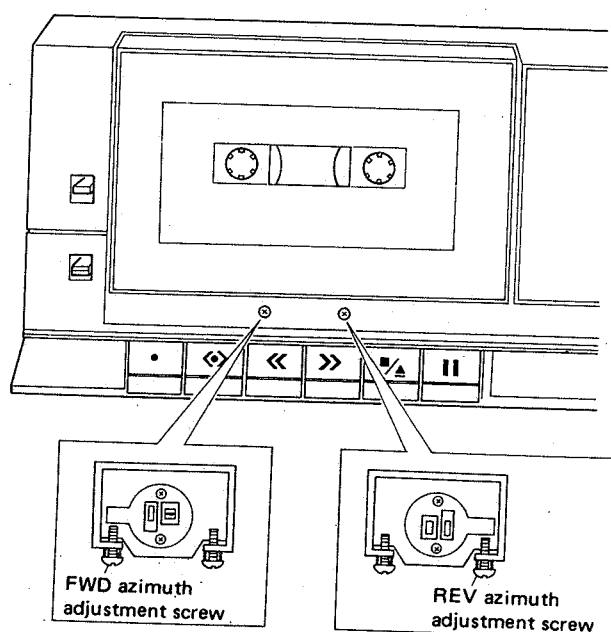


Fig. 10-3 Head azimuth adjustment

1. Head azimuth adjustment * (Note) Do not select FWD and REV with the screwdriver being kept inserted.							
Procedure	Tape selector	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	PLAY(FWD)	Play back 10kHz/ - 20dB on test tape STD-331B	Head azimuth adjusting screw (Fig. 10-3)	TP1 (R) TP2 (L)	Maximum playback signal level	After completion, lock the screw
2		PLAY(REV)					
2. Playback level adjustment * Perform this adjustment precisely since this adjustment is Dolby level setting during playback.							
Procedure	Tape selector	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	PLAY	Play back 315Hz/0dB on test tape STD-331B	VR504 (R) VR503 (L)	TP1 (R) TP2 (L)	-13.5dBv±0.5dB	(TP3: GND)
3. Adjustment of recording and playback frequency characteristics * This adjustment is performed in order to adjust the recording bias. Therefore, caution should be exercised not to worsen the distortion ratio due to under bias.							
Procedure	Tape selector	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	REC	Mount the test tape STD-608A and put into REC mode.	_____	Both sides of C701 (Fig. 10-4)	Confirm that the oscillation frequency is 105kHz±1kHz.	When it is not within the standard, put it into the standard by adjusting T701.
2	NORM	REC	Apply the signal of 315Hz to the CD terminal and turn the CD switch on.	Input signal level	TP1 (R) TP2 (L)	-33.5dBv±0.5dB	
3	NORM	PEC/PLAY	Record and play back 315Hz and 10kHz on test tape STD-608A.	VR702 (R) VR701 (L)	TP1 (R) TP2 (L)	Repeat recording and playback, and compensate so that the playback level of 10kHz against 315Hz becomes 0±0.5dB.	
* Select the test tape, tape selector, and Dolby NR switch and satisfy the frequency characteristic zone as shown in Figs. 10-6.							
4. Recording level adjustment * Set the graphic equalizer and balance volume to the center and the mike mixing volume to the source side.							
Procedure	Tape selector	Mode	Input signal/test tape	Adjusting point	Measuring point	Adjustment value	Remark
1	NORM	REC	Apply the signal of 315Hz to the CD terminal and turn the CD switch on.	Input signal level	TP1 (R) TP2 (L)	-13.5dBv (±0.5dB)	
2	NORM	REC/PLAY	Record and play back 315Hz to the test tape STD-608A.	VR704 (R) VR703 (L)	TP1 (R) TP2 (L)	Repeat recording and playback, and compensate so that the playback level of 315Hz becomes -13.5dBv (±0.5dB)	
3	CrO2	REC/PLAY	Record and play back 315Hz to the test tape STD-620.	_____	TP1 (R) TP2 (L)	Confirm that the playback level of 315Hz becomes -13.5dBv (±1dB)	
4	METAL	REC/PLAY	Record and play back 315Hz to the test tape STD-610.	_____	TP1 (R) TP2 (L)		

Note: * This deck is provided with an auto-tape-selector mechanism.

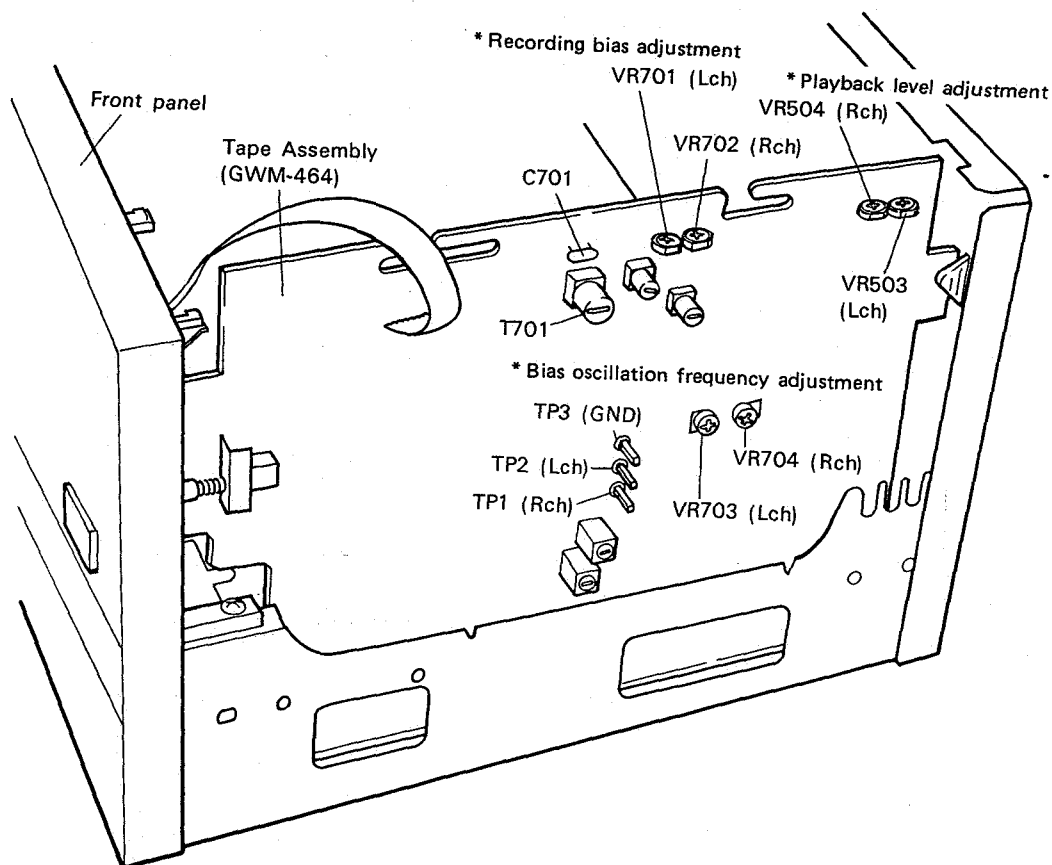


Fig. 10-4 Arrangement diagram of adjusting parts

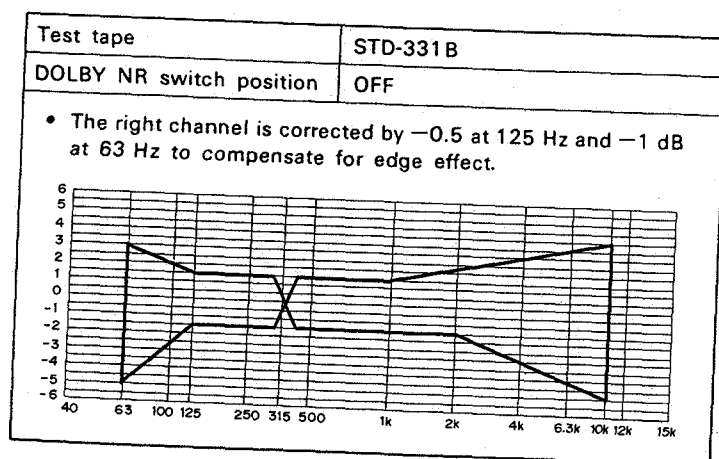


Fig. 10-5 Playback frequency response tolerance zone

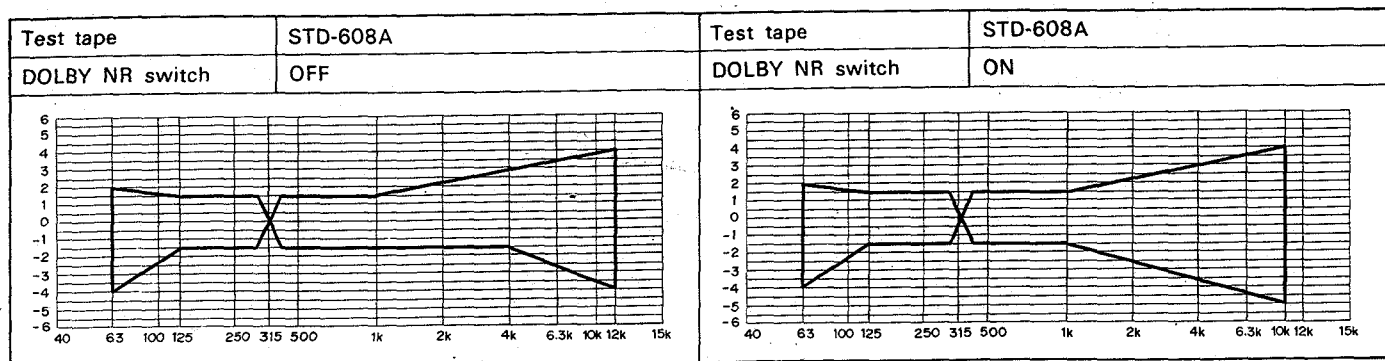


Fig. 10-6 Recording and playback frequency response tolerance zone (NORM)

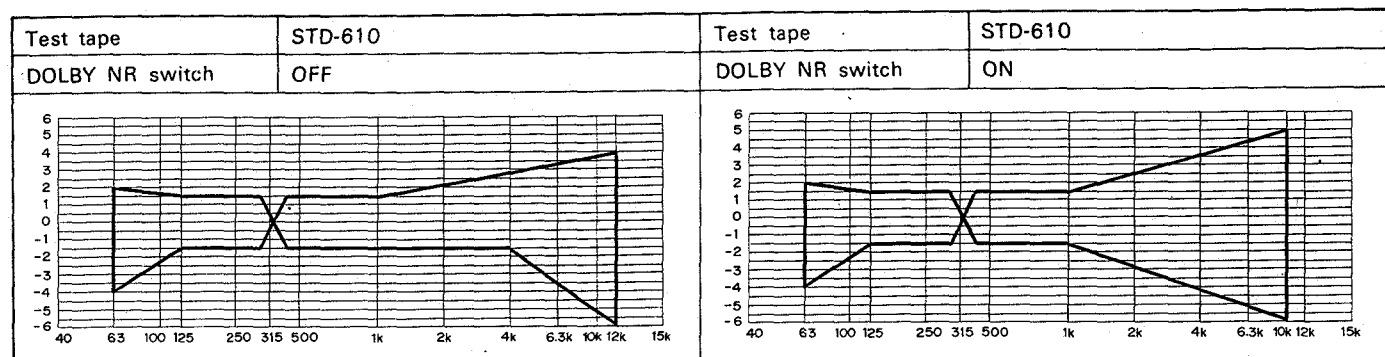


Fig. 10-7 Recording and playback frequency response tolerance zone (METAL)

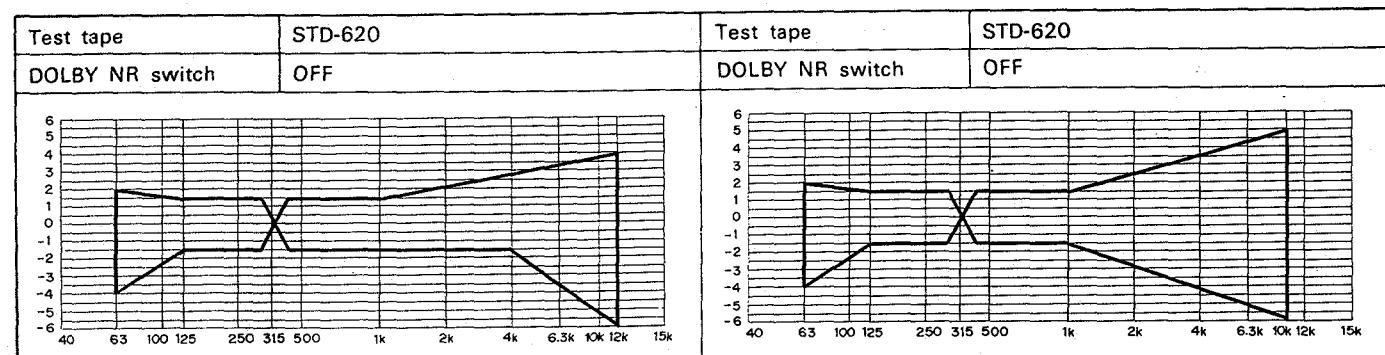


Fig. 10-8 Recording and playback frequency response tolerance zone (CrO2)

10. RÉGLAGE

10-1. REGLAGE DE LA VITESSE DE LA BANDE

1. Raccorder le compteur de fréquence a TP1 et TP3 (GND).
2. Installer la bande d'essai STD-301 sur la platine de lecture.
3. Mettre la platine en mode lecture et regler la vitesse de defilement pour que la fréquence du signal de lecture soit de $3010\text{Hz} \pm 5\text{Hz}$ en inserant un tournevis dan l'encoche de reglage du moteur.

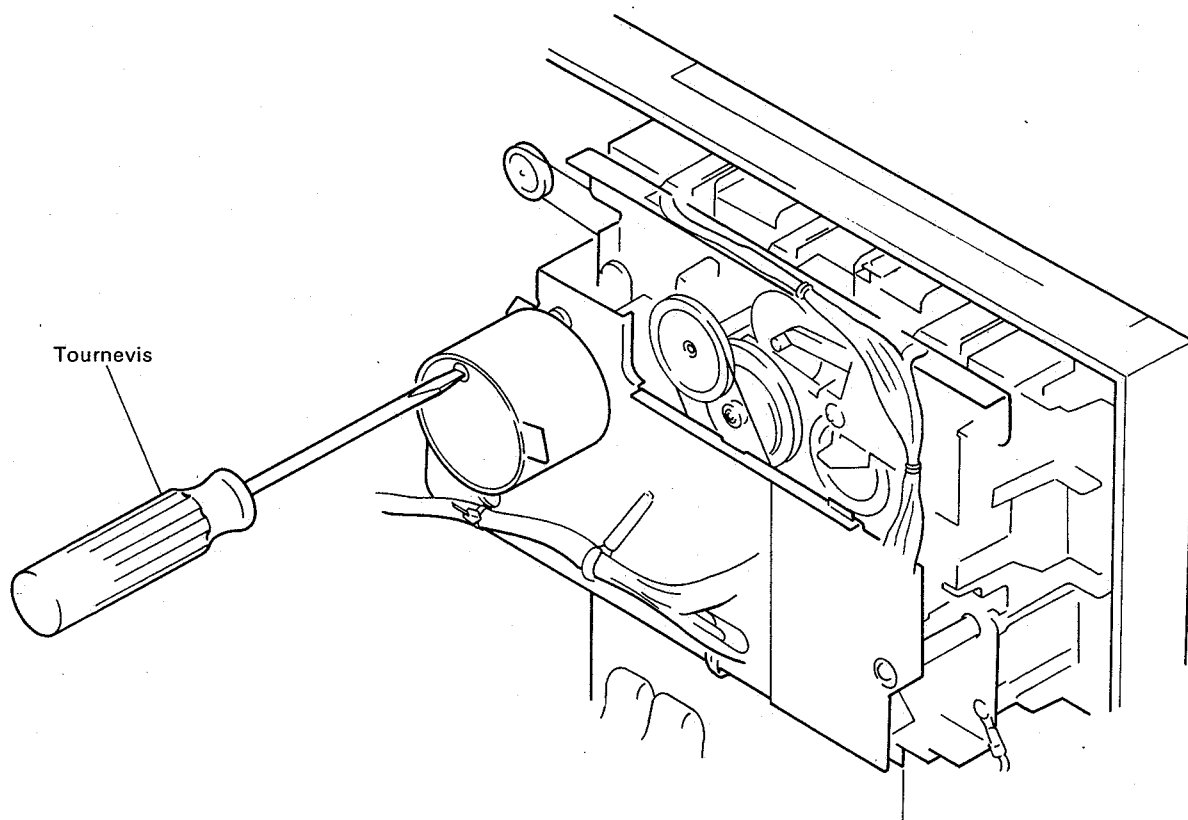


Fig. 10-1 Réglage de la vitesse de défilement

10-2. RÉGLAGES ÉLECTRIQUES

■ Avant de commencer à procéder aux réglages électriques, bien effectuer les vérifications suivantes.

1. Tous les réglages mécaniques ont été effectués.
2. Les têtes doivent être propres et démagnétisées.
3. 0 dBv = 1V pendant les mesures de niveau.
4. Utiliser les bandes spécifiées pour chaque réglage. Bien que les bandes d'essai aient à la fois une face A et une face B, n'utiliser que la face A sur laquelle est attachée l'étiquette.
 STD-331B: Réglage de la reproduction.
 STD-608A: Bande vierge ordinaire. (NORMAL)
 STD-620: Bande vierge à l'oxyde de chrome (CrO₂)
 STD-610: Bande vierge au métal (METAL)
5. Préparer les équipements de mesure ci-après: millivoltmètre CA, générateur audio, atténuateur, oscilloscope.
6. Régler à la fois le canal gauche et le canal droit, sauf spécification contraire.
7. Sauf spécification contraire, laisser le commutateur de réduction de bruit DOLBY en position arrêt (OFF).

8. Laisser l'appareil chauffer pendant au moins quelques minutes avant de commencer les réglages. Avant de commencer le réglage de la réponse en fréquences enregistrement/reproduction, laisser l'appareil fonctionner de trois à cinq minutes.
9. Toujours procéder aux réglages dans l'ordre indiqué. Si cet ordre est modifié, il ne sera plus possible d'effectuer des réglages correctement, et cela pourrait entraîner une dégradation des performances.

Procédure de réglage

1. Réglage de l'azimutage de la tête.
2. Réglage du niveau de reproduction.
3. Réponse en fréquences enregistrement/reproduction.
4. Réglage du niveau d'enregistrement.

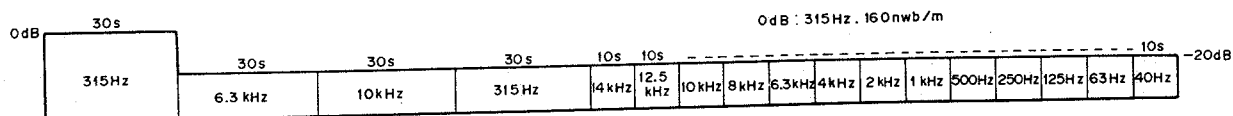


Fig. 10-2 Band d'essai STD-331B

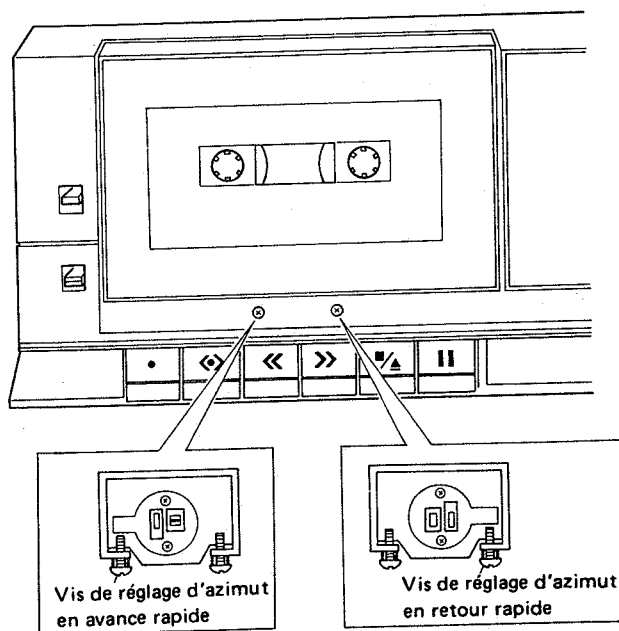


Fig. 10-3 Réglage d'azimut de tête magnétique

1. Réglage d'azimut * (Note) Enlever le tournevis avant de régler sur marche avant ou retour en arrière.							
Méthode	Sélecteur de bande	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	PLAY(FWD)	Lecture sur 10kHz/- 20dB avec bande d'essai STD-331B	Vis de réglage d'azimut (Fig. 10-3)	TP1 (R) TP2 (L)	Niveau maximum du signal de lecture	Bloquer ensuite la vis
2		PLAY(REV)					
2. Réglage du niveau de lecture * Effectuer ce réglage avec précision car il détermine le niveau Dolby pendant la lecture.							
Méthode	Sélecteur de bande	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	PLAY	Lecture sur 315Hz/0dB avec bande d'essai STD-331B	VR504 (R) VR503 (L)	TP1 (R) TP2 (L)	-13,5dBv±0,5dB	(TP3; GND)
3. Réglage des caractéristiques des fréquence d'enregistrement et de lecture * Ce réglage est effectué pour permettre l'ajustement de la polarisation d'enregistrement. Par conséquent, attention à ne pas perturber le taux de distorsion avec une sous-polarisation.							
Méthode	Sélecteur de bande	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	REC	Mettre la bande d'essai STD-608A en place et régler le mode REC.	_____	Deux côtés de C701 (Fig. 10-4)	Vérifier que la fréquence d'oscillation est de 105kHz±1 kHz.	Si les cotes ne sont respectées, régler à l'aide de T701.
2	Normal	REC	Appliquer un signal de 315Hz à la borne de CD et brancher l'interrupteur de CD.	Niveau du signal d'entrée	TP1 (R) TP2 (L)	-33.5dBv±0.5dB	
3	Normal	REC	Enregistrer et lire 315 Hz et 10kHz sur la bande d'essai STD-608A.	VR702 (R) VR701 (L)	TP1 (R) TP2 (L)	Recommencer enregistrement et lecture et compenser pour amener le niveau d'enregistrement de 10kHz à 0±0.5dB par rapport aux 315Hz.	
* Choisir la bande d'essai, régler le sélecteur de bande, brancher l'interrupteur de réduction de bruit Dolby et obtenir la zone de caractéristique de fréquence comme illustré en Fig. 10-6							
4. Réglage d'un niveau d'enregistrement * Régler le correcteur et le volume en position moyenne et le volume de mixage du micro sur côté source.							
Méthode	Sélecteur de bande	Mode	Signal d'entrée/bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarque
1	Normal	REC	Appliquer un signal de 315Hz à la borne de CD et brancher l'interrupteur de CD.	Niveau du signal d'entrée	TP1 (R) TP2 (L)	-13,5dBv (±0,5dB)	
2	Normal	REC/PLAY	Enregistrer et lire 315 Hz sur la bande d'essai STD-608A.	VR704 (R) VR703 (L)	TP1 (R) TP2 (L)	Recommencer enregistrement et lecture et compenser pour amener le niveau d'enregistrement de 315Hz à -13,5dBv(±0,5dB)	
3	CrO2	REC/PLAY	Enregistrer et lire 315 Hz sur la bande d'essai STD-620.	_____	TP1 (R) TP2 (L)	Vérifier que le niveau de lecture à 315Hz passe à -13,5dBv (±1 dB)	
4	METAL	REC/PLAY	Enregistrer et lire 315 Hz sur la bande d'essai STD-610.	_____	TP1 (R) TP2 (L)		

Note: * Cette platine est pourvue d'un mécanisme d'auto-sélection-de bande.

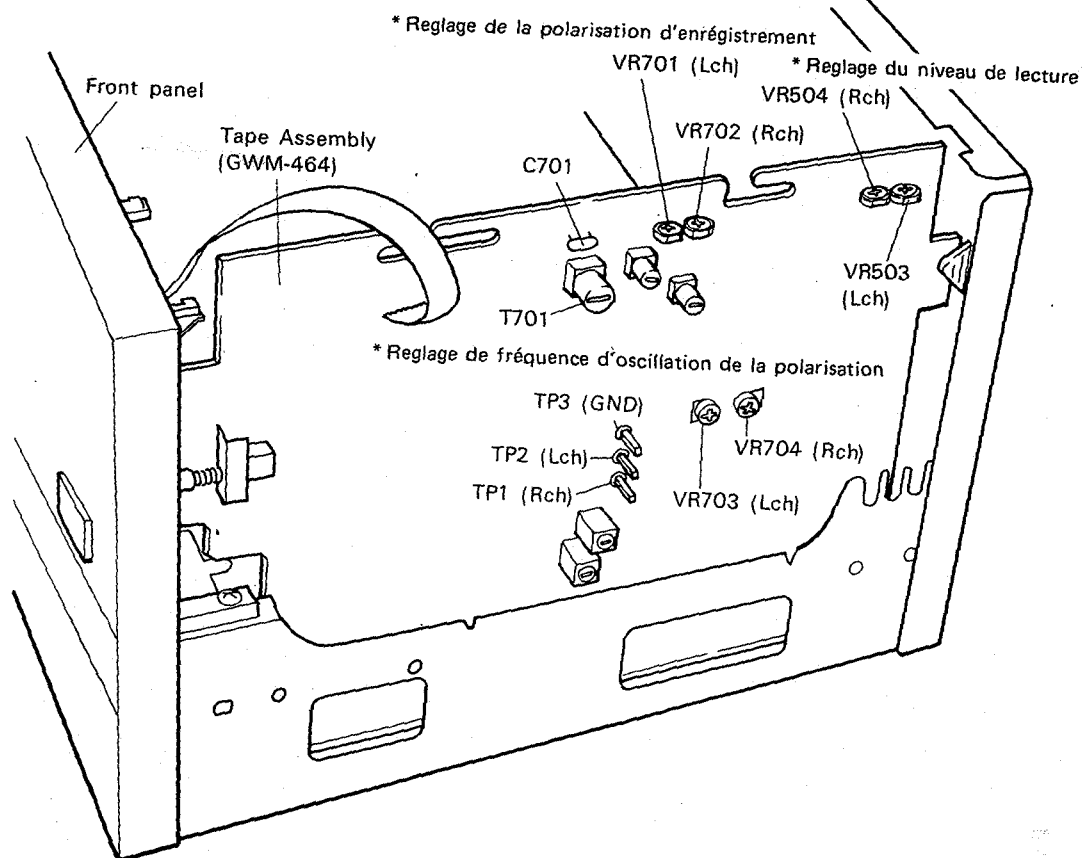


Fig. 10-4 Schéma de localisation des pièces de réglage

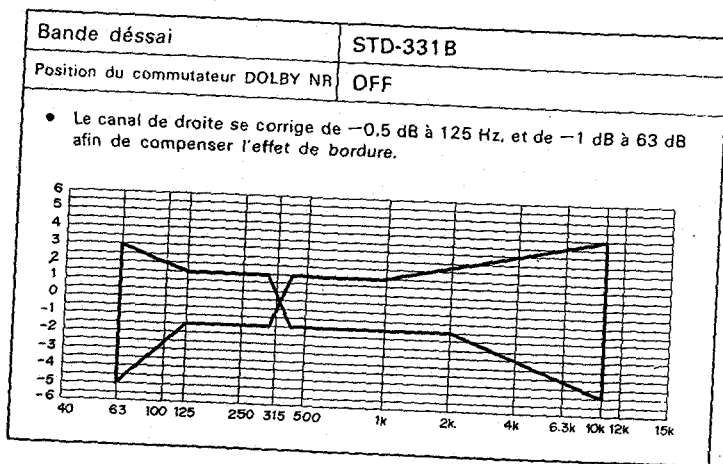


Fig. 10-5 Zone de tolérance de la réponse de fréquence de lecture

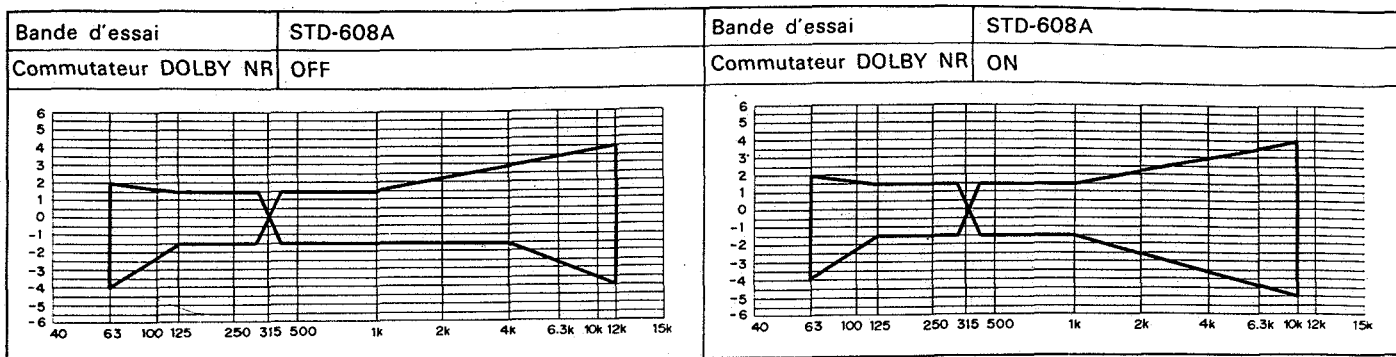


Fig. 10-6 Zone de tolérance de la réponse de fréquence d'enregistrement et de lecture (NORM)

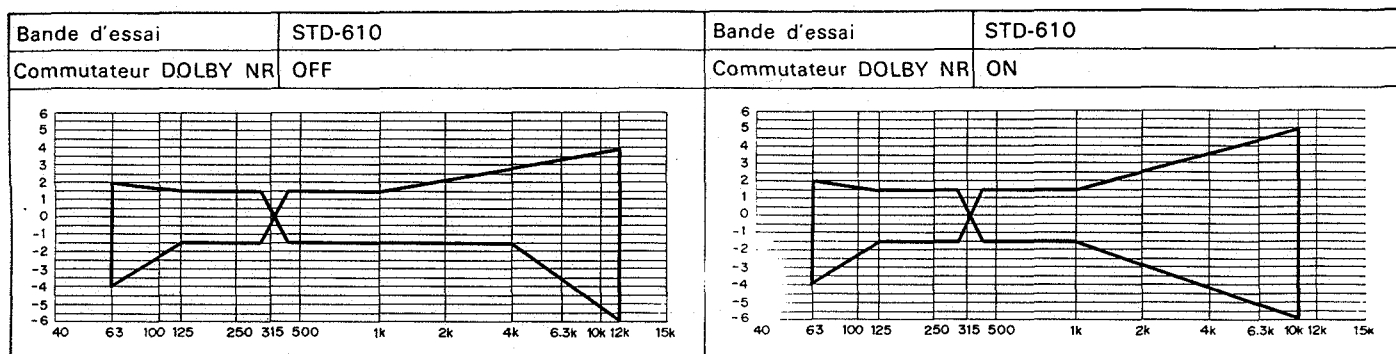


Fig. 10-7 Zone de tolérance de la réponse de fréquence d'enregistrement et de lecture (METAL)

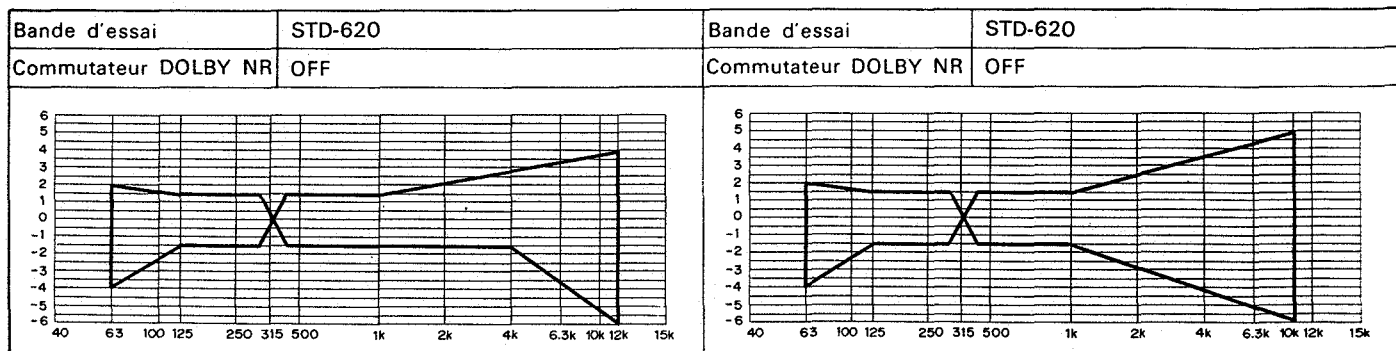


Fig. 10-8 Réponse de fréquence d'enregistrement et de lecture du mode de copiage (CrO2)

10. AJUSTE

10-1. AJUSTE DE VELOCIDAD DE LA CINTA

1. Conecte el frecuencímetro a TP1 y TP3 (GND).
2. Monte la cinta de prueba STD-301 en el deck.
3. Ponga el deck en el modo de reproducción y ajuste la velocidad de la cinta insertando un destornillador en la ranura de ajuste del motor, de modo que la frecuencia de señal de reproducción llegue a ser $3010\text{Hz} \pm 5\text{Hz}$.

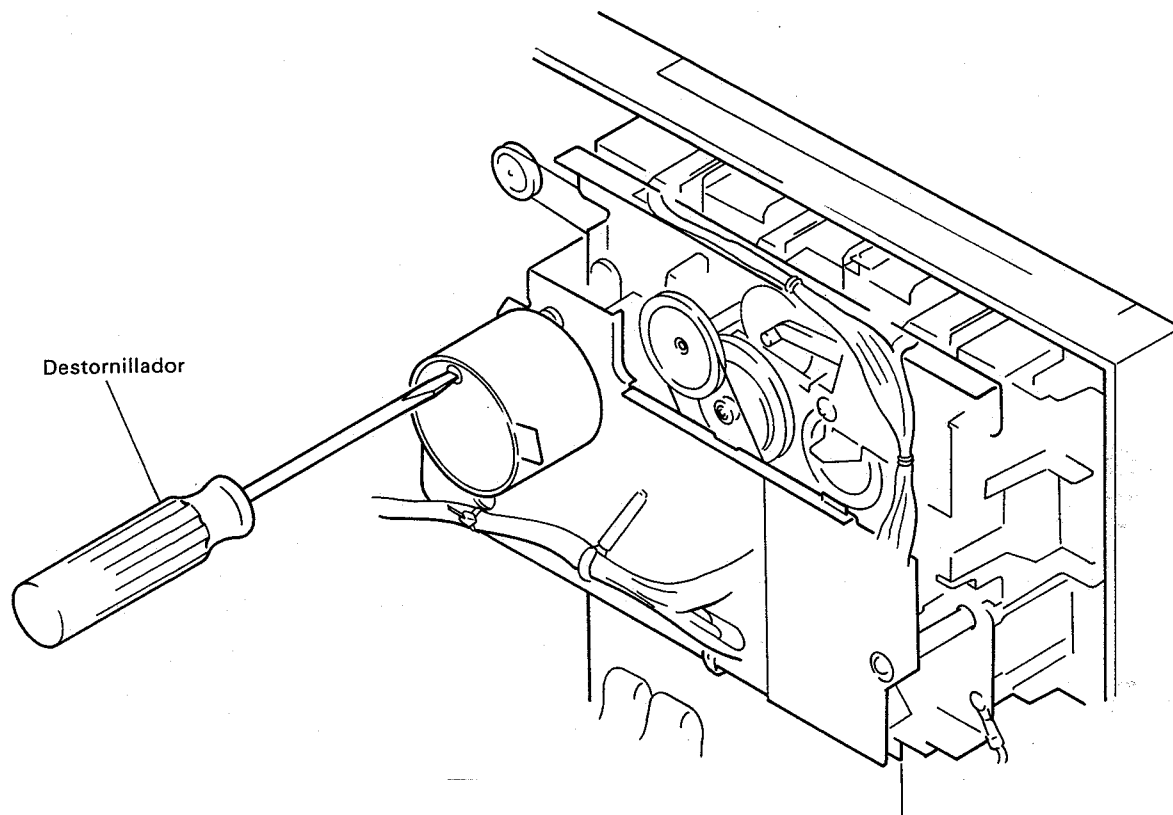


Fig. 10-1 Ajustamiento de la velocidad de cinta

10-2. AJUSTES ELECTRICOS

■ Antes de iniciar cualquier ajuste, cerciorarse de haber completado y comprobado lo siguiente.

1. Deben haberse completado todos los ajustes mecánicos.
2. Las cabezas deben estar limpias y desmagnetizadas.
3. 0 dBV=1V durante las mediciones del nivel.
4. Emplear las cintas especificadas para cada ajuste. Aunque estas cintas están provistas de ambos lados, A y B, emplear sólo el lado A, donde está la etiqueta.
STD-331B: Ajuste de reproducción.
STD-608A: Cinta en blanco NORMAL.
STD-620: Cinta en blanco de CrO₂.
STD-610: Cinta en blanco de METAL.
5. Preparar el siguiente equipo de medición: Un voltímetro de CA, un generador de sonido, un atenuador y un osciloscopio.
6. Ajustar los canales izquierdo y derecho a menos que se especifique lo contrario.
7. Y a menos que se diga lo contrario, dejar el interruptor DOLBY NR en la posición OFF.
8. Dejar que se precaliente el aparato durante algunos minutos antes de iniciar los ajustes.
Y antes de empezar el ajuste de la respuesta en frecuencia para reproducción y grabación, dejar que se precaliente de tres a cinco minutos.

9. Ajustar siempre el aparato en el orden de ajuste dado. Si se cambia el orden, no son posibles los ajustes adecuados, lo cual puede ocasionar pérdida del rendimiento.

Procedimientos de ajuste

1. Ajuste del acimut de la cabeza.
2. Ajuste del nivel de reproducción.
3. Respuesta en frecuencia de grabación/reproducción.
4. Ajuste del nivel de grabación.

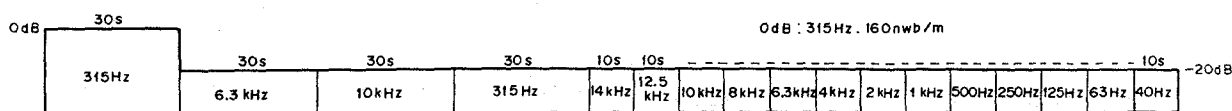


Fig. 10-2 Cinta de prueba STD-331B

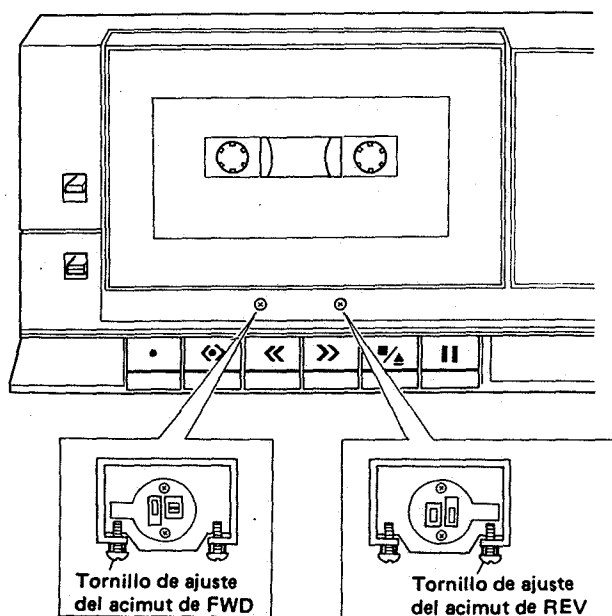


Fig. 10-3 Ajuste azimutal de la cabeza de grabación

1. Ajuste del acimut de la cabeza							
* (Nota) No seleccione el avance hacia delante o hacia atrás con el destornillador mantenido dentro.							
Procedimiento	Selector de cinta	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	PLAY(FWD)	Reproducción de 10 kHz/ - 20 dB en la cinta de prueba STD-331B	Tornillo de ajuste del acimut de la cabeza (Fig. 10-3)	TP1 (R) TP2 (L)	Nivel máximo de señal de reproducción	Después de terminar, trabe el tornillo
2		PLAY(REV)					
2. Ajuste del nivel de reproducción							
* Ejecute este ajuste con exactitud, ya que el anterior es la fijación del nivel Dolby durante la reproducción.							
Procedimiento	Selector de cinta	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	PLAY	Reproducción de 315Hz/ 0dB en la cinta de prueba STD-331B	VR504 (R) VR503 (L)	TP1 (R) TP2 (L)	-13,5dB \pm 0,5dB	(TP3: GND)
3. Ajuste de las características de la frecuencia de reproducción y grabación.							
* Este ajuste se efectua para ajustar la polarización de grabación. Por eso, se deberá tener cuidado de no empeorar la relación de distorsión debido a una subpolarización.							
Procedimiento	Selector de cinta	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	REC	Monte la cinta de prueba STD-608A y ponga el modo de REC.	_____	Ambos lados de C701(Fig. 10-4)	Confirme que la fre- cuencia de oscila- ción sea 105 kHz \pm 1 kHz.	Cuando no está dentro del estándar, póngala en el es- tándar ajustando T701.
2	Normal	REC	Apique la señal de 315 Hz a la terminal de CD y conecte el interruptor de CD.	Nivel de señal de entrada	TP1 (R) TP2 (L)	-33,5dB \pm 0,5dB	
3	Normal	REC/PLAY	Grabe y reproduzca 315 Hz y 10 kHz en la cinta de prueba STD-608A.	VR702 (R) VR701 (L)	TP1 (R) TP2 (L)	Repita la grabación y la reproducción, y compense de modo que el nivel de repro- ducción de 10 kHz contra 315 Hz llegue a ser 0 \pm 0,5dB.	
* Seleccione la cinta de prueba, el selector de cinta y el interruptor de reducción de ruido y satisfaga la zona de caracterfstica de la frecuencia como se muestra en las Figuras 10-6.							
4. Ajuste el nivel de grabación							
* Fije el ecualizador gráfico y el volumen de equilibrio al centro y el volumen de mezcla de micro al lado de la fuente.							
Procedimiento	Selector de cinta	Modo	Señal de entrada/ cinta de prueba	Punta de ajuste	Punta de medición	Valor de ajuste	Observación
1	Normal	REC	Aplique la señal de 315 Hz a la terminal de CD y co- necte el interruptor de CD.	Nivel de señal de entrada	TP1 (R) TP2 (L)	-13,5dBv (\pm 0,5dB)	
2	Normal	REC/PLAY	Grabe y reproduzca 315 Hz en la cinta de prueba STD-608A.	VR704 (R) VR703 (L)	TP1 (R) TP2 (L)	Repita la grabación y la reproducción, y compence de modo que el nivel de repro- ducción de 315Hz llegue a ser -13,5dBv (\pm 0,5dB)	
3	CrO2	REC/PLAY	Grabe y reproduzca 315 Hz en la cinta de prueba STD-620.	_____	TP1 (R) TP2 (L)	Confirme que el nivel de reproducción de 315 Hz llegue a ser -13,5dBv (\pm 1 dB)	
4	METAL	REC/PLAY	Grabe y reproduzca 315 Hz en la cinta de prueba STD-610.	_____	TP1 (R) TP2 (L)		

Nota: * Este deck está provisto con un mecanismo autoselector de cinta.

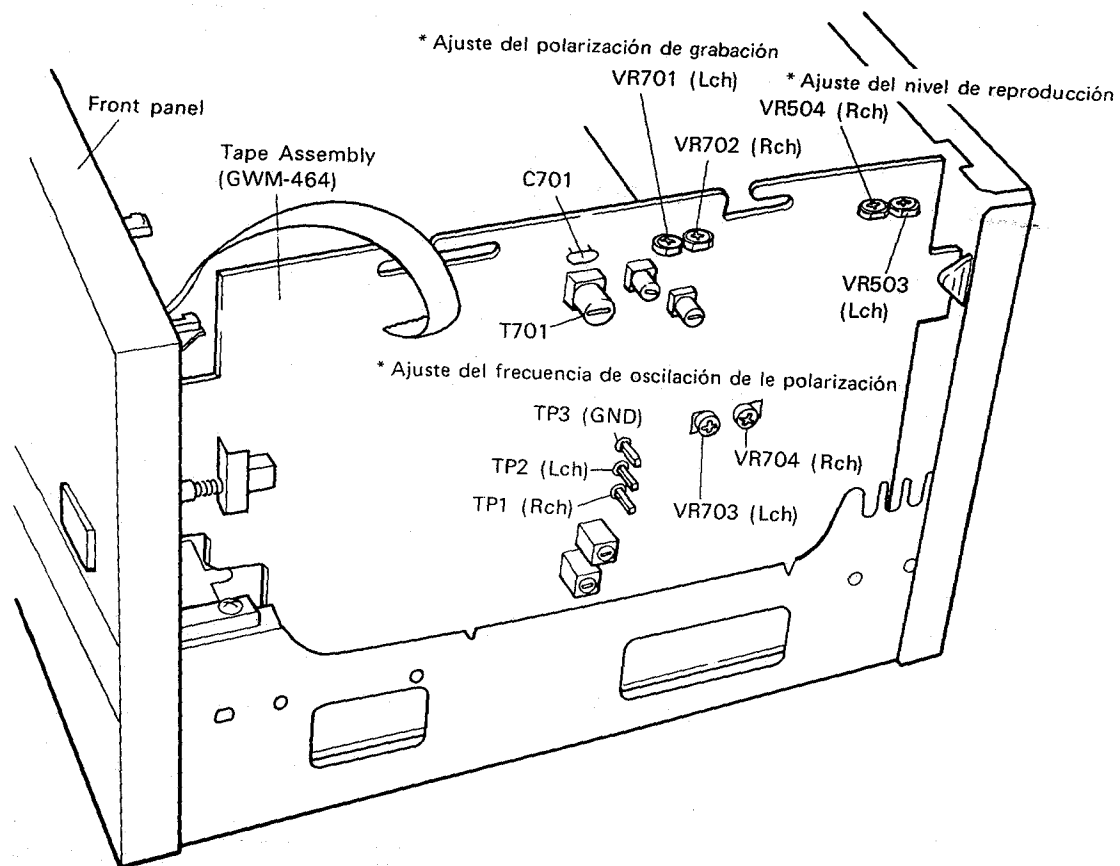


Fig. 10-4 Diagrama de disposición de las partes de ajuste

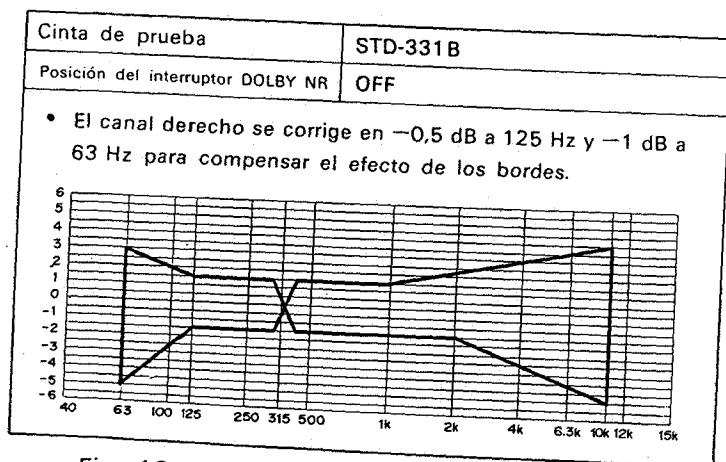


Fig. 10-5 Zona de tolerancia de respuesta de frecuencia de reproducción

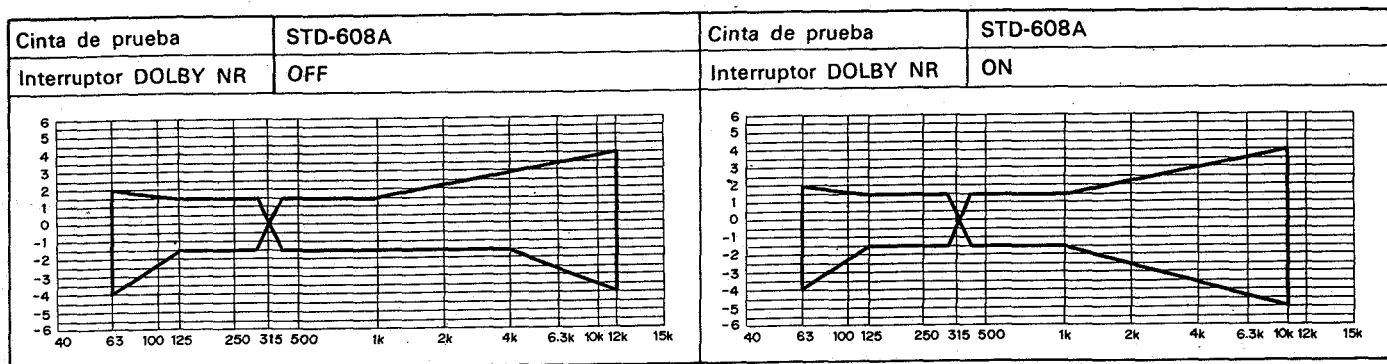


Fig. 10-6 Zona de tolerancia de copia y respuesta de frecuencia de reproducción (NORM)

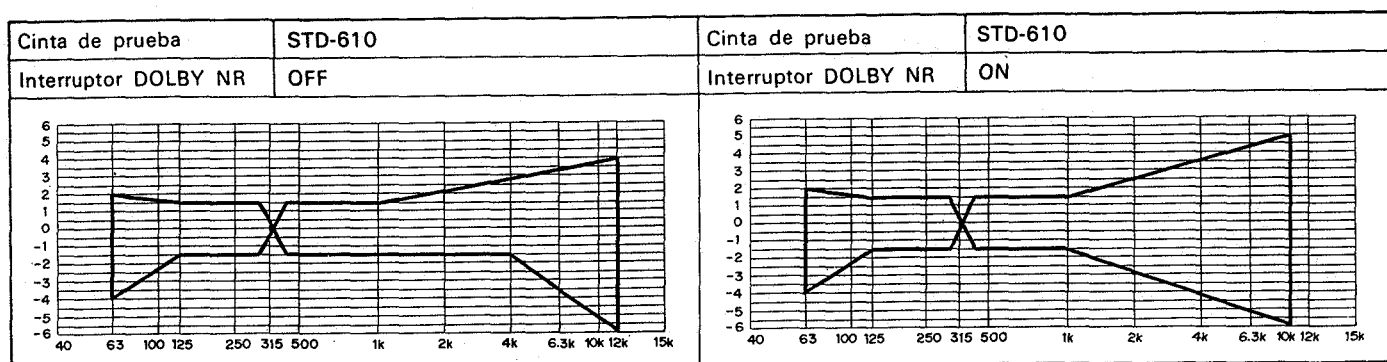


Fig. 10-7 Zona de tolerancia de copia y respuesta de frecuencia de reproducción (METAL)

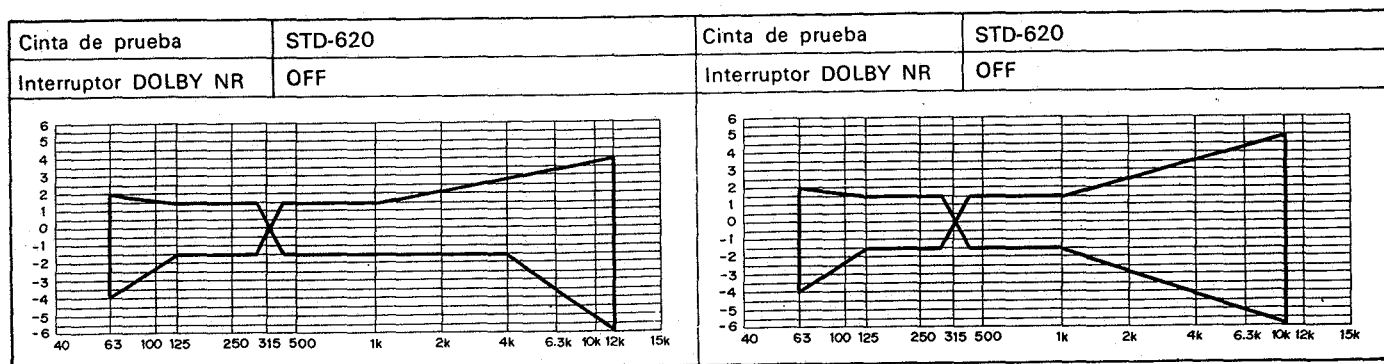


Fig. 10-8 Grabación de modo de copia y respuesta de frecuencia de reproducción (CrO₂)

11. FOR HE AND S TYPES

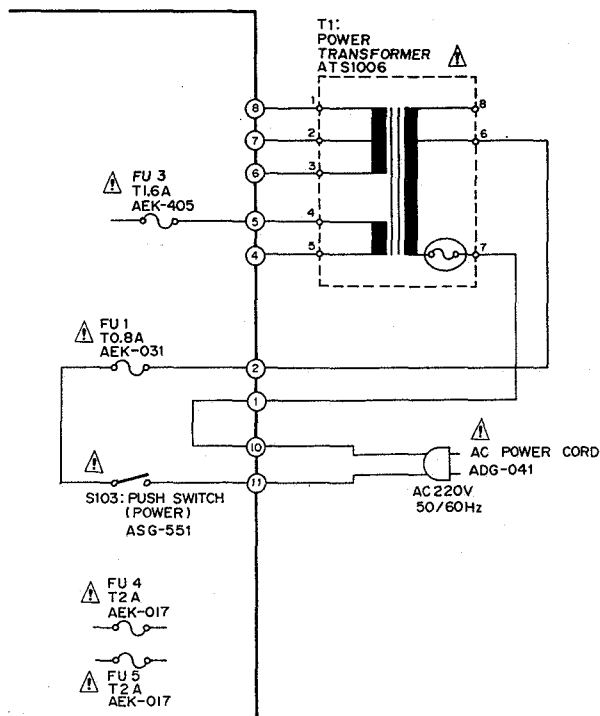
DC-X33Z(BK) HE and S types are the same as the DC-X33Z(BK) HB type except for following sections.

Contrast of Miscellaneous Parts

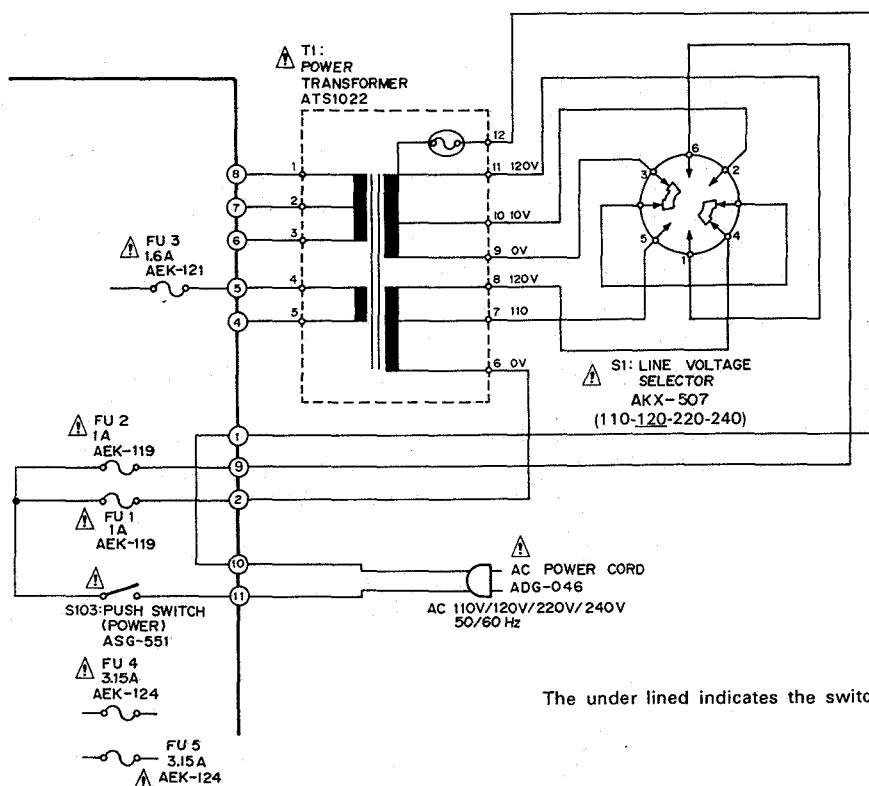
Mark	Symbol & Descriptions	Part No.				
		DC-X33Z(BK) HB type	DC-X33Z HB type	DC-X33Z(BK) HE type	DC-X33Z HE type	DC-X33Z(BK) S type
⚠ *	T1 Power transformer (220V/240V) (110V/120V/220V/240V)	ATS1006	ATS1006	ATS1006	ATS1006 .....	..... ATS1022
⚠	R Resistor (2.2M Ω , 1.2W)	.....	.....	.....	.....	.....
⚠ **	FU1 Fuse (T1.25A)	AEK-508	AEK-508	AEK-031	AEK-031	.....
⚠ **	FU1, FU2 Fuse (1A)	.....	.....	.....	.....	AEK-119
⚠ **	FU3 Fuse (T1.6A) (1.6A)	AEK-510	AEK-510	AEK-405	AEK-405 .....	..... AEK-121
⚠ **	FU4, FU5 Fuse (T2.5A) (3.15A)	AEK-511	AEK-511	AEK-017	AEK-017 .....	..... AEK-124
⚠ **	S1 Line voltage selector	.....	.....	.....	.....	AKX-507
	Knob (POWER)	AAD1003	AAD1029	AAD1003	AAD1029	AAD1003
	Knob (STEREO WIDE, TUNER, CD, PHONO, TAPE)	AAD1004	AAD1030	AAD1004	AAD1030	AAD1004
	Knob (DOLBY NR OFF-ON)	AAD1005	AAD1031	AAD1005	AAD1031	AAD1005
	Bonnet case	ANE1002	ANE1031	ANE1002	ANE1031	ANE1002
	Knob A (PLAY)	AAE1001	AAE1018	AAE1001	AAE1018	AAE1001
	Knob B (FAST)	AAE1002	AAE1019	AAE1002	AAE1019	AAE1002
	Knob C (FAST)	AAE1003	AAE1020	AAE1003	AAE1020	AAE1003
	Knob E (PAUSE)	AAE1027	AAE1028	AAE1027	AAE1028	AAE1027
	Volume base	AAK1001	AAE1065	AAK1001	AAK1065	AAK1001
	Knob F (REC)	AAE1006	AAE1023	AAE1006	AAE1023	AAE1006
	Knob (VOLUME)	AAE1010	AAE1025	AAE1010	AAE1025	AAE1010
	Deck panel (A)	AAK1013	AAK1073	AAK1013	AAK1073	AAK1013
	Front panel	AMB1009	AMB1051	AMB1009	AMB1051	AMB1009
	Operating instructions (English)	ARB1001	ARB1001	.....	.....	ARB1001
	(English/German/French/Italian)	.....	.....	ARE1010	ARE1010	.....
	(Spanish)	.....	.....	.....	.....	ARC1004
⚠	Strain relief	AEC-882	AEC-882	AEC-882	AEC-882	AEC-829
⚠	AC Power cord	ADG-051	ADG-051	ADG-041	ADG-041	ADG-046
	Packing case	AHD1007	AHD1054	AHD1007	AHD1054	AHD1007
	Player stand (L)	AMR1060	AMR1004	AMR1060	AMR1062	AMR1060
	Player stand (R)	AMR1061	AMR1005	AMR1061	AMR1063	AMR1061
	Knob D (STOP/EJECT)	AAE1004	AAE1021	AAE1004	AAE1021	AAE1004

Circuit Diagram

For HE type



For S type



The under lined indicates the switch position.

ADDITIONAL

 **PIONEER**

Service Manual

ORDER NO.
ARP1181-A

STEREO CASSETTE TAPE DECK AMPLIFIER

DC-X33Z(BK) HEZ, YP


- For servicing these types, please refer to the DC-X33Z(BK) service manual (ARP1120) with the exception of this additional service manual.
- This additional service manual is applicable to the HEZ and YP types.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A. TEL: (213) 420-5700
PIONEER ELECTRONIC (EUROPE) N.V. Keetberglaan 1, 2740 Beveren, Belgium TEL: 03/775-28-08
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia
TEL: (03) 580-9911





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1. CONTRAST OF MISCELLANEOUS PARTS

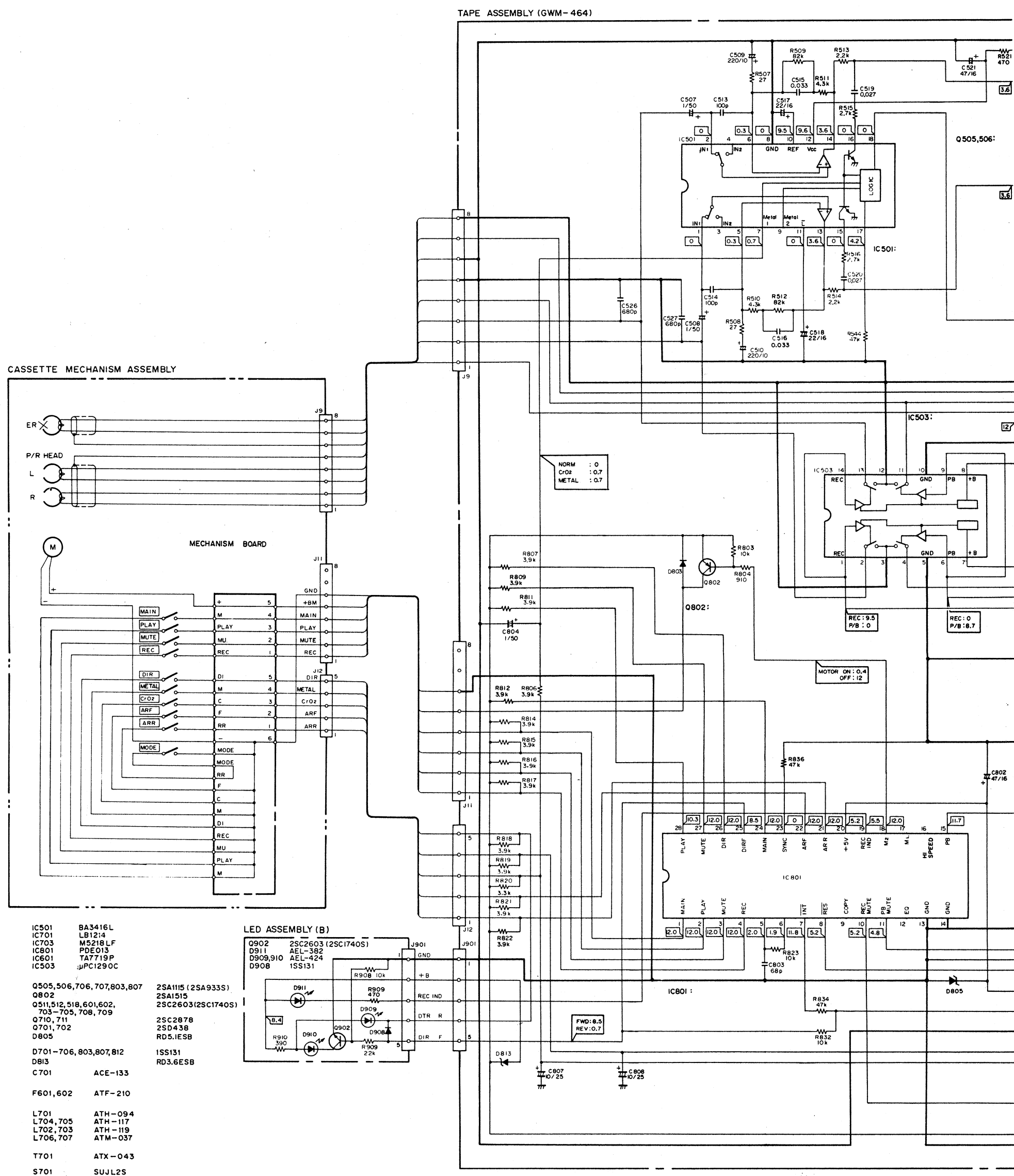
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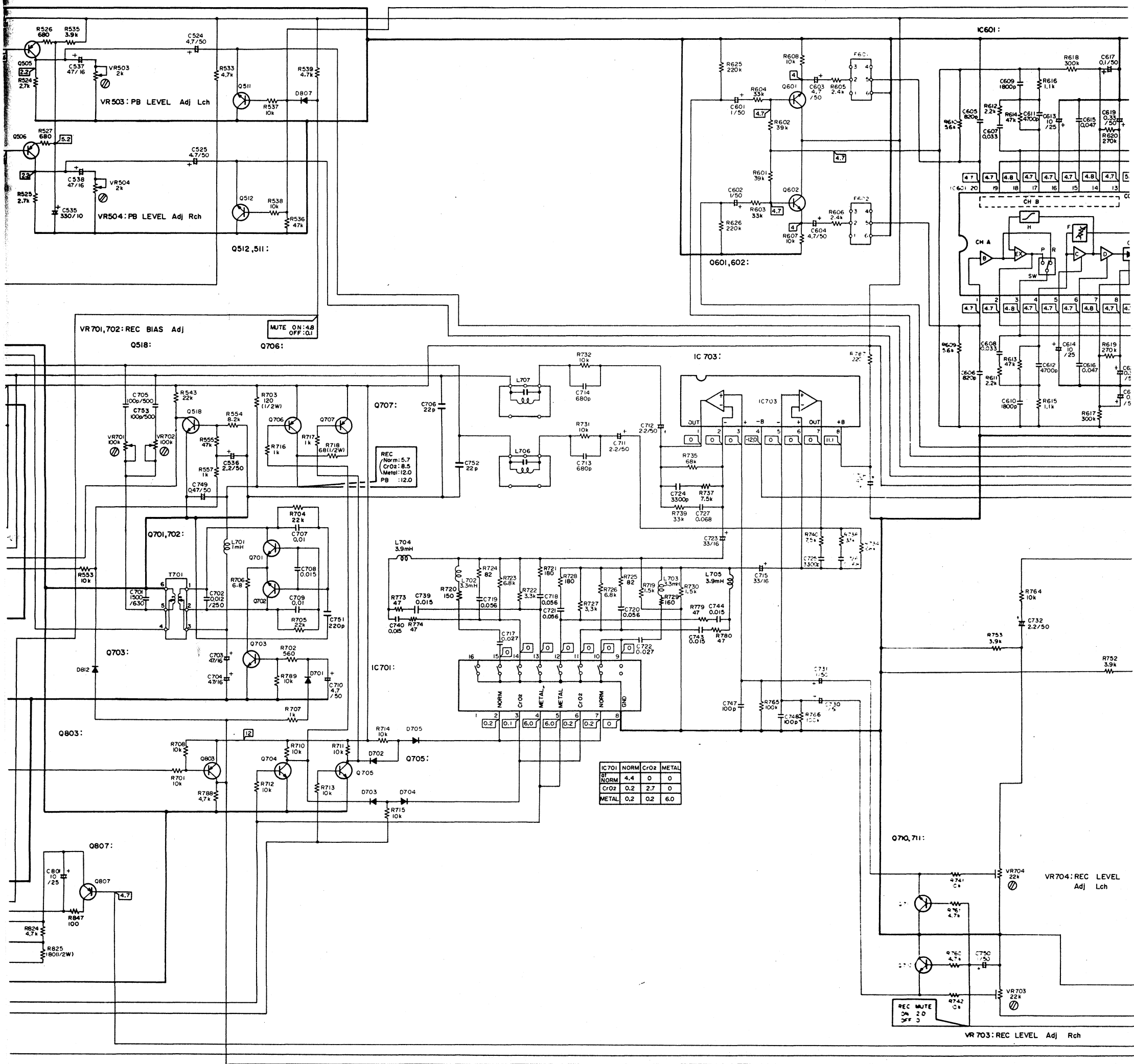
- The  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
★★ GENERALLY MOVES FASTER THAN ★
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

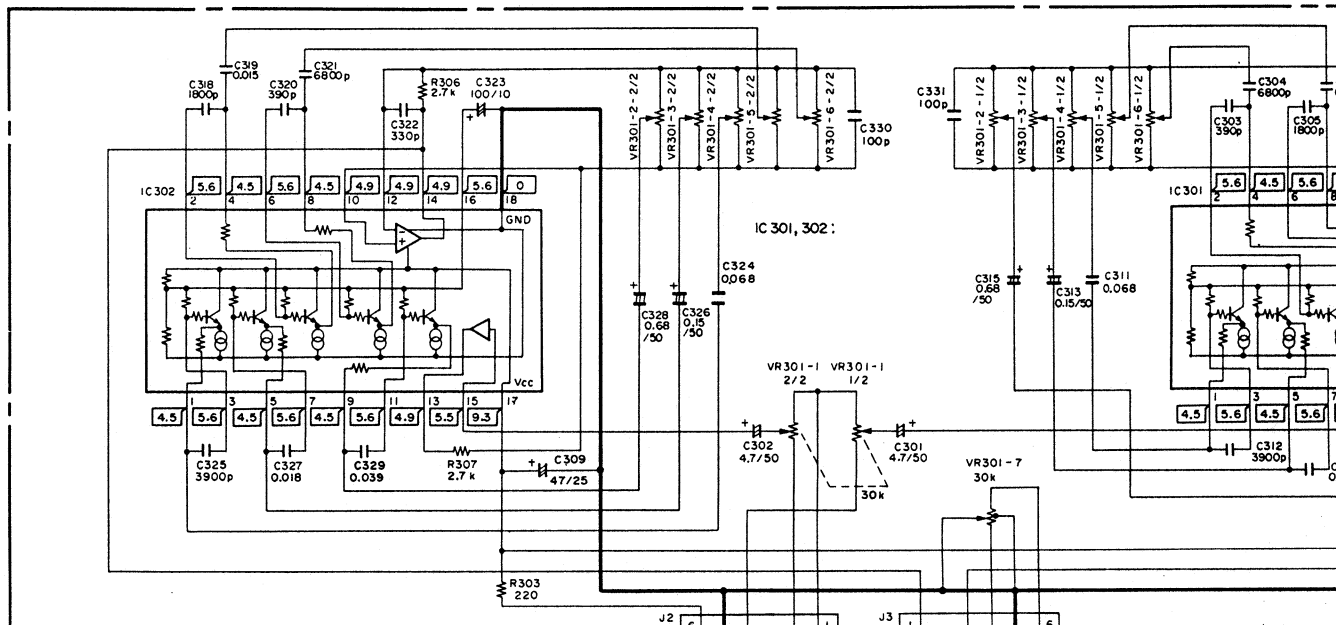
THE DC-X33Z(BK)/HEZ and YP types are the same as the DC-X33Z(BK)/HB type with the exception of the following sections.

Mark	Symbol & Description	Part No.			Remarks
		DC-X33Z(BK) HB type	DC-X33Z(BK) HEZ type	DC-X33Z(BK) YP type	
	AF Assembly	GWM-467	GWM-469	GWM-467	
	EQ Assembly	Non supply	Non supply	Non supply	
	MIC Assembly	Non supply	Non supply	Non supply	
	AC power cord	ADG-051	ADG-097	ADG-043	
 ★★	FU1 Fuse (T0.8A)	AEK-507	AEK-031	AEK-031	
 ★★	FU3 Fuse (T1.6A)	AEK-510	AEK-405	AEK-405	
 ★★	FU4, 5 Fuse (T2A)	AEK-511	AEK-017	AEK-017	
	Operating instructions (English)	ARB1001	.....	ARB1001	
	(German)	.....	ARC1011	.....

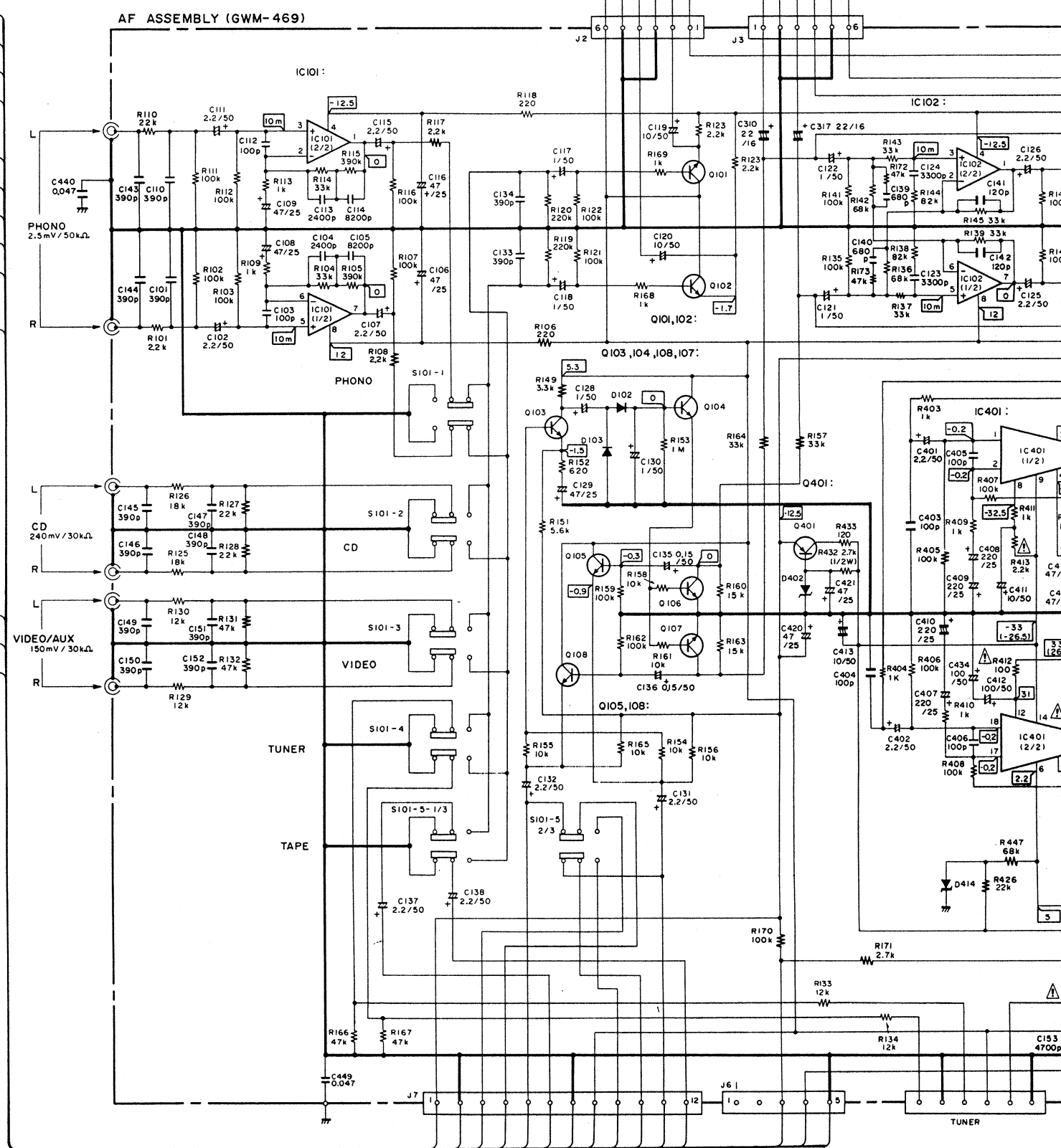
- For HEZ type

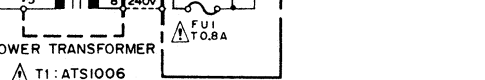






AF ASSEMBLY (GWM-469)





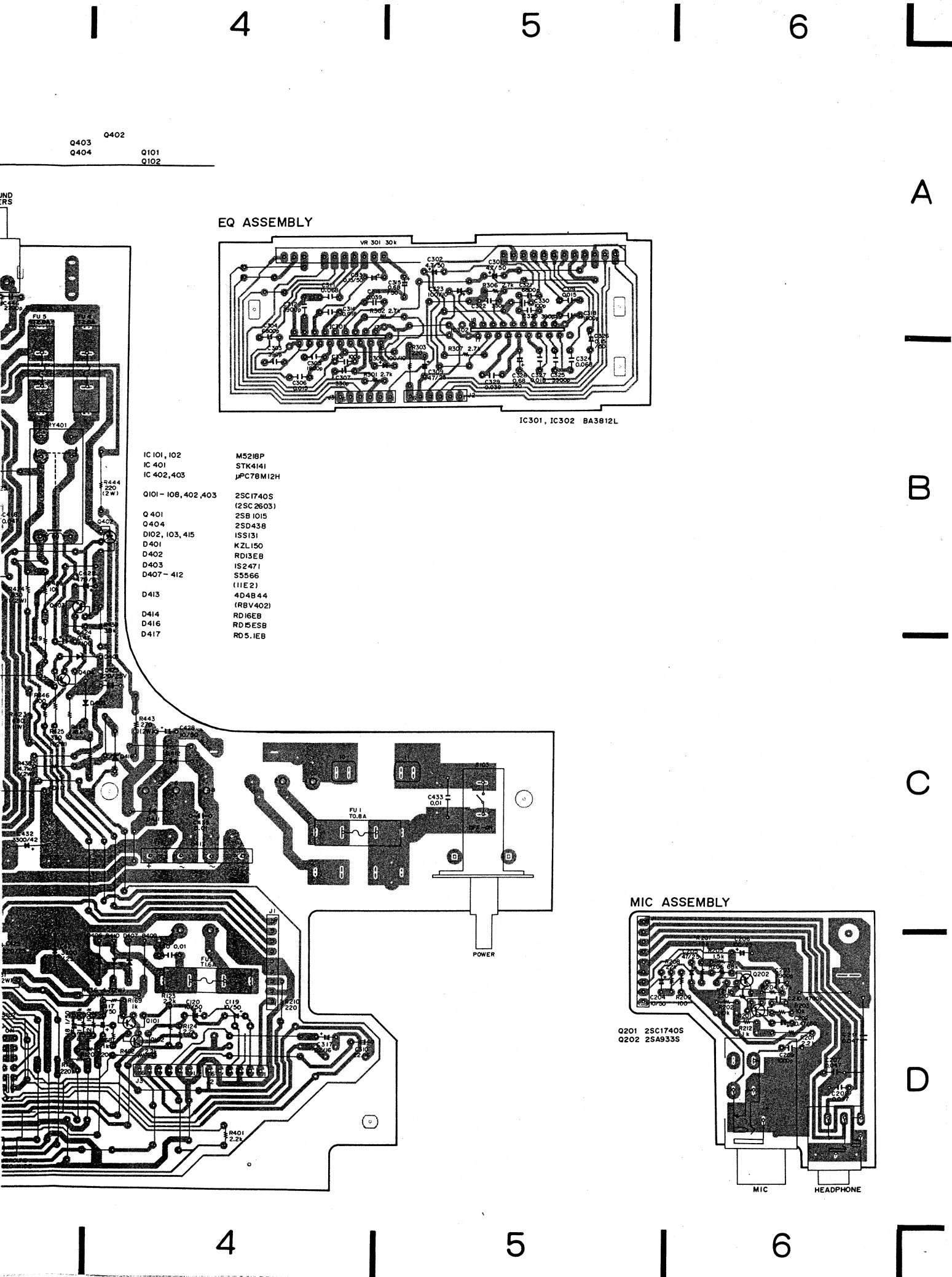
*Change the primary wiring of the power transformer.

- For HEZ type



B





4. ELECTRICAL PARTS LIST

NOTES:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.
 Ex. 1 When there are 2 effective-digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
 560Ω 56 × 10¹ 561 RD4PS 561 J
 47kΩ 47 × 10³ 473 RD4PS 473 J
 0.5Ω 0R5 RN2H 0R5 K
 1Ω 010 RS1P 010 K
 Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
 5.62kΩ 562 × 10¹ 5621 RN4SR 5621 F
- The △ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★
 ★★ GENERALLY MOVES FASTER THAN ★
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "⊙" are not always kept in stock. Their delivery-time may be longer than usual or they may be unavailable.

CAPACITORS

Mark	Symbol & Description	Part No.
△	C433 (0.01 μF/AC400V)	ACG1002
△	C430, C435 (0.01 μF/150V)	ACG-019
△	C431, C432 (3300 μF/42V)	ACH-249
	C103, C403, C404—406	CCCSL101J50 (CCDSL101J50)
	C112	CCDSL101J50
	C141, C142	CCCSL121J50 (CCDSL121J50)
	C424	CEASR47M100
	C117, C118, C128, C121, C122, C130	CEAS010M50
	C119, C120, C411, C413, C416, C426, C428	CEAS100M50
	C135, C136	CEASR15M50
	C412, C434	CEAS101M50
	C102, C107, C111, C115, C125, C126, C131, C132, C137, C138, C401, C402	CEAS220M16
	C310, C317	CEAS221M25
△	C427	CEAS332M25
	C106, C108, C109, C116, C129, C415, C417, C420, C421	CEAS470M25
	C414, C429	CEAS470M50
	C422	CEAS471M6
	C440, C449	CKDYF473Z50
	C139, C140	CKCYB681K50 (CKDYB681K50)

Mark	Symbol & Description	Part No.
	C123, C124	CKCYB332K50 (CKDYB332K50)
	C443, C444	CKDYB103K50
	C445, C446	CKDYB222K50
	C101, C110, C143-C152,	CKDYB391K50
	C448, C447	CKDYB102K50
	C153, C154	CKDYB472K50
	C104, C113	CQMA242J50
	C418, C419, C441, C442	CQMA473K50
	C105, C114	CQMA822J50
	C133, C134	CQSA391J50

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
△	R441, R442	RD1/2PMFL100J
	R432, R437, R438, R424,	RD1/2PM□□□J
	R425,	
△	R419, R420, R448, R449	RD1/4PMFL100J
△	R415	RD1/4PMFL101J
△	R421, R422	RD1/4PMF151J
△	R413	RD1/4PMFL222J
	R403—R411, R414,	RD1/4PM□□□J
	R416—R418, R426—R430,	
	R434	
△	R412, R435	RFA1/4PL101J
△	R433	RFA1/4PL121J
△	R423	RS1LMF681J
△	R443	RS2LMF271J
△	R431, R436	RS2LMF4R7J
△	R444	RS2LMF221J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal (OUTPUT) (2P)	AKB-093
	Terminal (INPUT, PHONO, CD,	AKB-095
	VIDEO) (6P)	
	Terminal (SPEAKER) (4P)	AKE-109
	Mini jack (OUTPUT)	AKN-034
	Socket (TUNER) (6P)	AKP-083

EQ Assembly (For HEZ type only)
SEMICONDUCTOR

Mark	Symbol & Description	Part No.
★★	IC301, IC302 AUDIO IC	BA3812L

CAPACITORS

Mark	Symbol & Description	Part No.
	C330, C331	CCDSL101J50
	C313, C326	CEASR15M50
	C315, C328	CEASR68M50
	C308, C323	CEAS101M10
	C301, C302	CEAS4R7M50
	C309	CEAS470M25
	C305, C318	CKCYB182K50 (CKDYB182K50)
	C307, C322	CKCYB331K50 (CKDYB331K50)
	C303, C320	CKCYB391K50 (CKDYB391K50)
	C312, C325	CKCYB392K50 (CKDYB392K50)
	C304, C321	CKCYB682K50 (CKDYB682K50)
	C306, C319	CKCYX153M25 (CKDYX153M25)
	C314, C327	CKCYX183M25 (CKDYX183M25)
	C316, C329	CKCX393M25 (CKDX393M25)
	C311, C324	CKCYX683M25 (CKDYX683M25)

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★★	VR301 Slide variable resistor	ACU1001
	Other resistors	RD1/8PM□□□J

MIC Assembly (For HEZ type only)
SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q202	2SA933S (JA101) (2SA1048)
★★	Q201	2SC1740S (2SC2603)

CAPACITORS

Mark	Symbol & Description	Part No.
	C202	CEASR47M50
	C206	CEAS101M25
	C204	CEAS100M50
	C205	CEAS470M25
	C203	CKCYB392K50 (CKDYB392K50)

Mark	Symbol & Description	Part No.
	C207, C208	CKCYF473Z50 (CKDYF473Z50)
	C209	CKDYB102K50
	C210	CKDYB472K50
	C211	CKDYF473Z50

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	MIC jack (MIC)	AKN-052
	Mini jack (PHONES)	AKN1001